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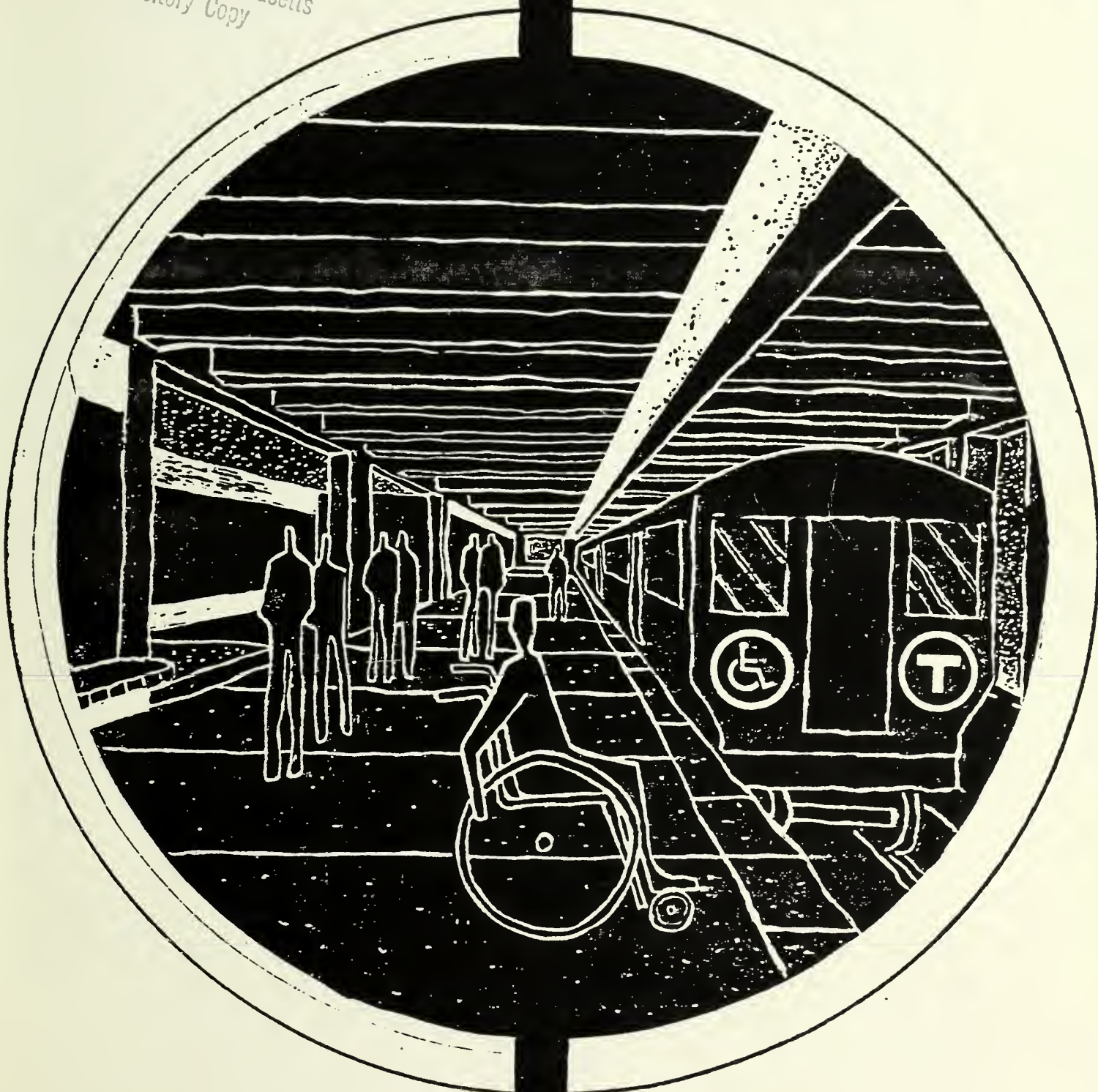


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MBTA TRANSITION PLAN IN COMPLIANCE WITH DOT 504 REGULATION



Prepared by
Office for Special Needs
Operations Directorate



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PREFACE

U. S. Department of Transportation Regulations require that a Transition Plan be prepared by the M.B.T.A. and submitted to the Urban Mass Transportation Administration by January 2, 1981. This plan explains how the M.B.T.A. will comply with Section 504 of the Rehabilitation Act of 1973 prohibiting discrimination against the handicapped.

This document describes a staged multi-year plan for achieving program accessibility in all areas of public transportation provided by or subsidized by the M.B.T.A. It further identifies existing policies and procedures and the alterations necessary to conform with the Regulation.

This plan was developed with the cooperation of many consumers, representatives of advocacy groups, and representatives from public and private agencies. The many hours volunteered by these people have been invaluable and the plan could not have been completed without them. Their insight and suggestions have given the plan a genuine sense of community involvement.

A list of regular task force members is attached in the Appendix. However, our special thanks go to the liaison persons, chairpersons, and other regular attendees who contributed so much.

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A. EXECUTIVE SUMMARY

This Transition Plan was developed in accordance with the guidelines presented by the Department of Transportation in 49CFR part 27. The overall responsibility for its preparation was placed with the M.B.T.A.'s Office for Special Needs (OSN). However, much of the credit for the development of this Plan must go to those consumers and advocates who devoted many hours of their own time; their advice and assistance is gratefully acknowledged. Additionally, successful completion of this document could not have been accomplished without the aid and input of many departments within the M.B.T.A.

This Plan describes, in a staged, multi-year fashion, how the M.B.T.A. will move from its present state to one of program accessibility. It identifies in detail the changes in vehicles, facilities, and policies required for achievement of program accessibility and for the provision of interim service.

Section B of this Plan presents a summary of pertinent federal and state requirements. Section C describes community participation in the preparation of the Plan and also includes certain demographic data taken from the Authority's Master Plan - Transport Services for Persons with Special Needs (July, 1977). Estimates of the numbers of transportation handicapped persons within the region and a definition of the term transportation handicapped appear in the same section of the Plan.

In December of 1979, the Authority began to evaluate its present status vis-a-vis discrimination against handicapped persons. Section D.1 of the Transition Plan identifies in great detail the state of existing vehicles and facilities. All modes of transportation are covered including bus, trackless trolley, commuter rail, light rail, rapid rail and paratransit. The conclusion of the section is, in essence, that few vehicles and facilities are now totally accessible (i.e., usable by wheelchair patrons). However, programmed construction and modernization on the rapid transit lines will have a dramatic effect on that particular mode over the next decade.

Section D.2 identifies existing policies and practices which may discriminate against handicapped persons including riders of the system, employees of the Authority, and applicants for employment. This section also describes many steps which could be implemented to insure total compliance with the requirements of Section 504.

Section E contains the major thrust of the Plan, that is, the portion dealing with program accessibility of all modes of the transit network. Each sub-section thereunder deals with an individual mode and describes a staged plan for program accessibility including approximate costs and completion dates (when obtainable). In short, the M.B.T.A. feels it is possible to: (1) purchase lift-equipped buses, (2) achieve program accessibility on the rapid transit lines through station construction and modernization, and (3) achieve program accessibility on the commuter railroad through the use of mini-high

platform loading. The M.B.T.A. does not feel it is feasible, at this time, to attempt to achieve program accessibility on the light rail system and has submitted, within this document, a waiver request for this mode. The subject waiver request can be found in Section F of the Plan.

The Authority has designed an extensive Integrated Paratransit Program, detailed in Section G, which will provide (assuming approval of the waiver request) both interim and alternate service. The plan is for zonal, demand-responsive service providing transportation to rapid transit stations which are presently accessible, i.e., feeder-distributor service. Also a distributor service (point deviation) will emanate from the downtown accessible station, Park Street.

Costs and funding are key issues within the entire concept of accessibility. The funding procedure, both operating and capital, is described in Section H; Table H.1 depicts the FY 1979 and FY 1980 Federal allocations. The section also notes that no specific funds have been allocated by U.M.T.A. for Section 504 compliance and that compliance efforts must compete for already scarce funds. Costs are discussed within each section of the Plan, but those used are merely estimates and are subject to radical change. Tables A.1, A.2, and A.3 depict the potential compliance costs associated with Section 504. The following information will aid one in understanding the manner in which these cost estimates were derived.

1. Rapid Rail - Capital and Operating & Maintenance (O&M)
Costs are identical in each of the three tables. The figures are derived from the Section 321 Rail Retrofit Study (1979 dollars) and have been scaled down to reflect those new construction and station modernization efforts which are already programmed.
2. Light Rail - Table A.1 shows the cost of converting the entire central subway to full high platform operation and assumes the use of mini-high platforms at all surface stops. Also included is the purchase price of 200 new Street Rail Cars (SRC). A minimum of 200 would be required to achieve program accessibility. This approach is, obviously, quite expensive, but it is the Authority's position that this is the only operationally feasible means of achieving accessibility on the Green Line if the waiver request were denied. The figures in Table A.2 are also based upon the denial of a Green Line waiver but utilize the Section 321 approach to accessibility. This approach though less costly is considered by the Authority to be operationally infeasible. The system is one of a combination of lift-equipped LRVs and mini-high platforms and calls for the retrofitting of all Boeing LRVs with wheelchair lifts (2) and hi-lo steps (2). The technology for such a retrofit does not and may never exist. The use of mini-high platforms in the central subway would cause serious dwell time problems on a line already beset with a multitude of operating difficulties.

Table A.3 reflects the costs associated with an approved Green Line waiver. One should note that Alternate Service covers both Light Rail and Interim Service costs. Details on the Alternate Service are contained in Section G of the Plan. The method of compliance shown in A.3 is that which the Authority recommends, it is the least costly of the three and provides a higher quality service to handicapped riders while ensuring the continued delivery of high quality service to all patrons.

3. Commuter Rail - These costs, consistent throughout, are derived from the Section 321 Rail Retrofit Study. In this approach, mini-high platform loading is used. This concept is workable in Commuter Rail because dwell time is not a factor and the service itself is more "hands-on" in its delivery than is light rail. The Authority endorses this approach but must add that there exists a degree of uncertainty with the present cost estimates. The Authority's cost estimating department feels the costs may be somewhat understated.
4. Bus - Assuming the Authority purchases 80 new buses each year for the next 30 years and the wheelchair lift adds \$14,000 to the unit price, we can project capital costs of \$33.6 million. An average O&M cost of \$1800 per bus and a fleet of 1,150 buses gives the annual O&M cost of \$2.07 million.

5. Trolley Bus - The cost of the trolley bus lift was assumed to be slightly higher (\$16,000) due to diseconomies of scale. It was also assumed that the longer life of these vehicles would be a factor and the capital costs reflect only one turnover of the fleet. O&M costs are identical to standard buses.
6. Suburban Bus - The Authority intends to treat this program as paratransit for compliance purposes. Therefore, the cost shown is based upon the monies required (capital and operating) to operate one accessible paratransit vehicle in each of the five demonstration towns. Operating cost equals \$27,000 per year per vehicle and capital cost equals \$5,500 per year per vehicle.
7. Contract Services - This cost is somewhat difficult to predict, for purposes of this plan it has been assumed that the costs incurred will be equal to the capital and O&M costs associated with lift equipment on each of the buses used. In this case, 14 buses at \$1400 per year capital and \$1800 per year O&M. The total cost appears under the heading O&M because it is an amount the Authority pays to a contractor(s).
8. Interim Service - The amounts shown in Tables A.1 and A.2 exceed the federally mandated minimum, rather they are based upon the current cost of THE RIDE service. The annual O&M cost shown is, in fact, the 1981 budget request.

The capital cost reflects the amount necessary to maintain a fleet of 34 vehicles with an average vehicle life of 3 years at a unit cost of \$16,000. Neither column reflects any expansion of the service after 1981.

9. Alternate Service - This program is described in detail in Section G of the Plan. One will note that the cost of this service is shown only in Table A.3 and that it replaces not only Green Line costs, but Interim Service costs as well. The O&M costs are taken directly from the Plan while the capital costs reflect the maintenance of a 64-vehicle fleet.

Table A.3 reflects the approach to compliance endorsed by the M.B.T.A.

10. Policies and Practices - Section 504 compliance also requires certain policy changes in the area of personnel and communication with the public. The estimate shown reflects the costs of such things as: additional personnel in the AA/EEO Office, the cost of reasonable accommodation to employees/applicants, and increased media costs relative to those with sensory disabilities (i.e., blind, deaf). Examples of reasonable accommodation costs would include such things as construction of a small ramp to allow entry of a person in a wheelchair, purchase of special equipment for a blind or deaf employee and so on. Media costs would increase due to the need for braille and large print material, and

perhaps paid use of voice and visual media to insure equal communication with all persons. These costs are very general estimates and may require revision at a later date.

Lastly, those items contained in the Appendix are worthy of special note. In addition to a listing of community participants, there are four sets of recommendations, one from each of the formal task forces and one developed by a sub-group of visually-impaired consumers and professionals in that field. Some of these recommendations are incorporated in the Plan and others are not. Those which are not, are being or will be examined closely by the Authority and will be addressed in the Annual Status Report, as required by Section 27.105 of the 504 Regulation.

The Authority submits this Transition Plan for approval by the Urban Mass Transportation Administration and feels confident that its content and its manner of preparation is responsive to both the letter and the spirit of the Section 504 Regulation.

SECTION 504 COMPLIANCE COSTS

Table A.1

MODE	ONE TIME CAPITAL COST	ANNUAL O&M COSTS	TOTAL COST 30 YEARS
Rapid Rail	\$ 26,601,000	\$1,200,000	\$ 62,601,000
Light Rail (Total High Platform)	\$ 63,652,050	\$ 617,000	\$ 82,162,050
200 SRC's	\$100,000,000	\$ 720,000	\$121,600,000
Commuter Rail	\$ 13,270,000	\$ 376,000	\$ 24,550,000
Bus	\$ 33,600,000	\$2,070,000	\$ 95,700,000
Trolley Bus	\$ 1,600,000	\$ 90,000	\$ 4,300,000
Suburban Bus	N/A	\$ 162,000	\$ 4,860,000
Contract Service	N/A	\$ 44,800	\$ 1,344,000
Interim Service	\$ 5,280,000	\$1,350,000	\$ 45,780,000
Policies and Practices	N/A	\$ 150,000	\$ 4,500,000
TOTAL	\$244,003,050	\$6,779,800	\$447,397,050

Table A.1 depicts costs if no Green Line waiver were granted and the Green Line was converted to full high platform with the purchase of 200 new street rail cars (SRC).

Office for Special Needs
Anthony J. Kinahan
November 24, 1980

SECTION 504 COMPLIANCE COSTS

Table A.2

<u>MODE</u>	<u>ONE TIME CAPITAL COST</u>	<u>ANNUAL O&M COSTS</u>	<u>TOTAL COST 30 YEARS</u>
Rapid Rail	\$ 26,601,000	\$1,200,000	\$ 62,601,000
Light Rail	\$ 26,914,000	\$1,247,000	\$ 64,324,000
Commuter Rail	\$ 13,270,000	\$ 376,000	\$ 24,550,000
Bus	\$ 33,600,000	\$2,070,000	\$ 95,700,000
Trolley Bus	\$ 1,600,000	\$ 90,000	\$ 4,300,000
Suburban Bus	N/A	\$ 162,000	\$ 4,860,000
Contract Service	N/A	\$ 44,800	\$ 1,344,000
Interim Service	\$ 5,280,000	\$1,350,000	\$ 45,780,000
Policies and Practices	N/A	\$ 150,000	\$ 4,500,000
<hr/>			
TOTAL	\$107,265,000	\$6,689,800	\$307,959,000
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Table A.2 depicts costs if no Green Line waiver were granted and the so-called 321 solution was utilized for Green Line accessibility.

Office for Special Needs
Anthony J. Kinahan
November 24, 1980

SECTION 504 COMPLIANCE COSTS

Table A.3

<u>MODE</u>	<u>ONE TIME CAPITAL COST</u>	<u>ANNUAL O&M COSTS</u>	<u>TOTAL COST 30 YEARS</u>
Rapid Rail	\$26,601,000	\$1,200,000	\$ 62,601,000
Light Rail	- Waiver Granted - See Alternate Service -		
Commuter Rail	\$13,270,000	\$ 376,000	\$ 24,550,000
Bus	\$33,600,000	\$2,070,000	\$ 95,700,000
Trolley Bus	\$ 1,600,000	\$ 90,000	\$ 4,300,000
Suburban Bus	N/A	\$ 162,000	\$ 4,860,000
Contract Service	N/A	\$ 44,800	\$ 1,344,000
Alternate Service	\$10,240,000	\$2,310,000	\$ 79,540,000
Policies and Practices	N/A	\$ 150,000	\$ 4,500,000
<hr/>			
TOTAL	\$85,311,000	\$6,372,800	\$276,495,000
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Table A.3 depicts costs if the Green Line waiver were granted and alternate paratransit service was provided.

Office for Special Needs
Anthony J. Kinahan
November 24, 1980

GLOSSARY

A.1

AA/EEO	Affirmative Action/Equal Employment Opportunity Office at M.B.T.A.
AB Board (ABB)	Massachusetts Architectural Barriers Board - has promulgated regulations relative to physical accessibility standards for building and facilities
advance notice	requirement for phoning in ahead to request transportation (hours to weeks ahead)
ANSI Standards	American National Standards Institute regulations relative to physical accessibility standards for buildings and facilities - The U.M.T.A. 504 Regulation requires compliance with the ANSI standards (ANSI A117.1-1961).
alternate service	Accessible transport service required by the 504 Regulation which must be provided in lieu of making any rail service accessible (assuming a waiver is granted by U.M.T.A.).

B

C

CBD	central business district (downtown Boston)
CTPS	Central Transportation Planning Staff - the research and planning arm of the Metropolitan Planning Organization
capital cost	purchase or construction cost of equipment, vehicles and materials
car cards	signs hung over seats in transit vehicles, normally used for advertising purposes
chaircar service	transport service which carries persons in wheelchair (vehicles have ramps or wheelchair lifts)

C (cont'd.)

collector service	usually bus or van service which picks people up from various points to take them to (usually) one location
commuter railroad (CRR)	inter-city rail service within the greater Boston metropolitan area, as opposed to AMTRAK which provides no local service, only long distance (primarily inter-state) transportation
connector service	(504 specific) accessible transit service connecting the vicinity of the inaccessible rapid rail station to that of the nearest accessible station in the person's direction of travel or vice versa

D

deadheading	a transit vehicle travelling to or from a run, not in passenger (revenue) service
demand-responsive (DR transportation)	A service which responds to direct user needs, picking up and dropping off at the time and location specified by the passenger; the request is normally telephoned in.
dial-a-ride	common name for demand-responsive transportation service which provides shared rides (i.e., there may be several people on board who are traveling from/to different locations); the service is requested by telephone
door-to-door	paratransit service which transports people from their individual origins (e.g., residence) to their individual destinations (e.g., work, school); may be to/from curb of street address or actual front door
distributor service	bus or van service which picks up passengers from (usually) one designated location and transports them to any or several specified destinations within a given area. For this Transition Plan, there will be unlimited pickup points within downtown Boston.
dwelt time	the time it takes to unload and load passengers at a stop

E

EOTC Executive Office of Transportation
and Construction (the Massachusetts
department of transportation)

F

feeder service bus or van service which picks up
people at any or specified locations
within a given area and transports
them to (usually) one designated loca-
tion for transfer onto another vehicle
for long-distance transit service

few-to-many
 (or one) a demand responsive transport service
which picks up people at a few designated
locations (or one) and takes them to any
location within a given area

fixed route (FR)
service ordinary bus or train service with the
vehicle travelling on a designated route
in accordance with a published schedule

G

gap filler (closer) a device to span the gap between a rail
car and the high platform of the station
so as to facilitate crossing of the gap
by wheelchair users and others; it may
come out from either the train or the
platform.

generator see "trip generator"

H

headway the time between fixed route vehicles,
e.g., 15 minutes between trains

high-low step
device a staircase designed for vehicles which
folds so that people may exit and enter
the vehicle from either the ground or a
high platform

high (full high)
platform a station platform permitting level
access onto any train vehicle; the
platform is the floor of the waiting
area as in a rapid transit station

hold down device see "tie-down device"

I

immediate response providing transport service immediately following a telephone request for service (taxi service would be the best example of an immediate response service)

interim service accessible van or bus service required by 504 Regulation to be provided from July, 1982 until program accessibility is reached

intermodal travel which uses more than one mode of transportation, e.g., a trip requiring use of both light rail and rapid transit service would be considered intermodal.

internal service (accessible) transport service within a given zone

interlining the practice of assigning the same bus and driver to more than one route on the same day

intramodal travel which involves a transfer within the same mode, e.g., one rapid transit line to another

J

K

key station rapid transit, commuter rail and light rail stations which are required by the 504 Regulation to be made accessible to both ambulatory handicapped and wheelchair users due to their meeting certain criteria such as high usage, being at the end of a line or a transfer point

kneeler a transit bus with somewhat easier access in that its front right hand corner can be lowered to bring the bottom step closer to the ground or curb

L

Light Rail Vehicle
(LRV) (Streetcar,
Trolley)

Green Line and High Speed Line (Mattapan) electrically powered from an overhead wire, operate on a track which may or may not be on a separate right-of-way; the two types of vehicles providing light rail service are LRVs and PCC cars.

line capacity

maximum number of passengers that can be carried on a given line at a given time (e.g., Riverside, or Orange Line during the morning rush hour)

load factor

the number of passengers actually carried divided by the vehicle capacity

M

MAPC

Metropolitan Area Planning Council - The metropolitan regional planning agency responsible for 101 cities and towns in eastern Massachusetts. All 79 communities within the M.B.T.A. region are within its jurisdiction.

MPO

Metropolitan Planning Organization

many-to-few
(or one)

a demand responsive transportation service which picks up people anywhere within a given area and takes them to a few designated destinations (or one)

many-to-many

a demand responsive transportation service which picks up people anywhere within a given area and takes them to any destination within another or (usually) the same given area

mini (mini-high)
platform

a station platform permitting level access onto any train vehicle; it is placed on top of the station floor and is long enough to serve two vestibules or adjoining cars; it is accessed by stairs and a ramp

mode

any of all forms of transportation, e.g., rapid transit, commuter rail, bus, trackless trolley, light rail for the M.B.T.A.; walking, airplane, horse, elephant, etc. would also qualify as modes

N

O

off-peak	period during which ridership and demand are not as great as during rush hour
operating cost	cost of operating transit service, including such expenses as maintenance and repair of vehicles, salaries, fringe benefits, fuel, etc., exclusive of capital costs

P

PCC car (Streetcar, Trolley)	Presidential Conference Committee car, designed in the late 1930s for light rail service
paratransit	flexible transportation service ordinarily utilizing low capacity vehicles, e.g., demand responsive, minibus, van pool or taxi service
passenger trip	one person making one trip (one direction)
passive lift	a wheelchair lift which is not separate from the stairs of a vehicle, i.e., the steps themselves become the lift
peak period	periods when ridership and demand are greatest, rush hours
point deviation	when a paratransit service travels between specified points but will alter the route to those points in response to telephone requests for service
private carrier	private bus company providing service for the M.B.T.A. under contract
productivity	number of passenger trips per vehicle hour
program accessibility	when a transportation system such as the M.B.T.A. is, when viewed in its entirety, accessible to handicapped people including those in wheelchairs; every vehicle or station need not be accessible to wheelchairs

Q

R

rapid transit lines (rapid rail)	Orange Line, Red Line, Blue Line rail service on separate right-of- way with electrical power being supplied by means of a third rail; all stations have high platforms
ridership	number of passengers transported (per unit of time)
retrofit	to physically/architecturally alter a facility or vehicle to install an additional component, e.g., lifts on buses and elevators in rapid transit stations
route deviation	bus or van service where an overall route and schedule are adhered to although minor deviations are made upon request (perhaps by telephone request)

S

service standards	parameters defining transport service, e.g., hours of operation, frequency of service, fare
subscription service	an arrangement in paratransit where a passenger is picked up automatically at the same time, usually daily at the same origin to go to the same destination (e.g.; to/from work)
suburban bus service	five intra-community services in Natick, Lexington, Needham, Winchester and Bedford; they are atypical relative to the rest of the M.B.T.A. service; one of them has a route deviation component
surface lines	includes bus, trackless trolley and light rail service

T

TDD	telecommunications device for the deaf - a machine which enables a deaf individual to communicate over the phone by typing out a message to someone at the other end with a similar machine
TH (transportation handicapped)	people who, due to their physical or mental disabilities, are unable to utilize transit given the barriers which currently exist
TIP	Transportation Improvement Program
TSC	Transportation Systems Center of the Department of Transportation, located in Cambridge
TTY	teletype communication system for persons with severe hearing impairments, see "TDD"
tie-down device	a device for securing a wheelchair in a vehicle, ordinarily metal bars or chains of some sort
trackless trolley (trolley bus)	basically a bus which is electrically powered from an overhead wire
trip generator	an activity or location which typically produces large numbers of people, therefore, trip-making, e.g., major entertainment centers and hospitals, large employment complexes

U

U.M.T.A.	Urban Mass Transportation Administration, the branch of the U.S. Department of Transportation responsible for matters relating to urban transit
user side subsidy	giving money, discounted tickets, coupons or vouchers which enable eligible persons to purchase their own transportation on the open market

V

W,X,Y, Z

waiver

The U.M.T.A. 504 Regulation permits requests for waivers on any rail service (light rail, rapid rail, or commuter rail in the case of the M.B.T.A.)

OTHER

16(b) (2)

a section of the Urban Mass Transportation Act of 1964 which provides funding for private non-profit corporations to be used for purchasing vehicles to transport elderly and handicapped people

321(a & b)

part of the Surface Transportation Assistance Act of 1978 which authorized studies to be made to determine the cost of making rapid transit accessible (a), and the feasibility and cost of making light and commuter rail accessible (b); known also as the Rail Retrofit Study

13(c)

a section of the Urban Mass Transportation Act of 1964 which provides strong protection to employees funded through the Act, relative to benefits, rights, etc.

B. SUMMARY OF FEDERAL AND STATE REQUIREMENTS

The basic requirements governing public transportation for the handicapped and the issue of accessibility are set out in a series of federal and state laws and regulations. The overall policy is that public services must be usable by all persons, including the handicapped. With certain exceptions pertaining to existing facilities or vehicles, all transit services must provide service to the handicapped which is not discriminatory and is as equal as possible to the service provided to non-handicapped persons.

The formulation of this policy is the result of many years of study and debate about the needs of the handicapped and the legal and moral rights involved. There have been a lengthy series of actions, primarily at the national level, which have resulted in today's policy. Congress has passed several pieces of legislation which touch upon the need for transportation for the handicapped; also, UMTA has promulgated several proposed and final regulations. The major pieces of legislation are Section 16 of the UMT Act of 1964 and Section 504 of the Rehabilitation Act of 1973. The operative DOT regulations were issued on May 31, 1979 (49 CFR part 27).

1. Federal Legislation

The UMT Act of 1964, as amended in 1970, included the following statement:

"Section 16 (a). It is hereby declared to be the national policy that elderly and handicapped persons have the same right as other persons to utilize mass transportation facilities and services so that the availability to elderly and handicapped persons

of mass transportation which they can effectively utilize will be assured; and that all federal programs offering assistance in the field of mass transportation (including the programs under this Act) should contain provisions implementing this policy."

The Rehabilitation Act of 1973 (Section 504) provides that no handicapped individual shall be denied the benefits of or be subject to discrimination under any program or activity receiving Federal assistance.

"...no otherwise qualified handicapped individual in the United States, as defined in Section 706(6) of this title, shall solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subject to discrimination under any program or activity receiving Federal assistance..."

2. Federal Regulations

In April, 1976, President Ford issued Executive Order 11914, charging the Secretary of HEW with the responsibility to "coordinate the implementation of Section 504...by all federal departments and agencies..." and to "establish standards for determining what are discriminatory practices within the meaning of 504." The Executive Order also directed each agency administering programs providing federal financial assistance to issue its own regulations, consistent with the standards established by the Secretary of HEW. In response to this Presidential Directive, HEW promulgated guidelines setting standards for other federal agencies to follow in developing their Section 504 Regulations. 43 Fed. Reg. 2132 (January 13, 1978), codified at 45 C.F.R. Section 85.1-85.99 (1978) ("the HEW guidelines").

The HEW guidelines provided generally with respect to program accessibility that:

"No qualified handicapped person shall, because a recipient's facilities are inaccessible to or unusable by handicapped persons, be denied the benefits of, be excluded from participation in, or otherwise be subjected to discrimination under any program or activity that receives or benefits from federal financial assistance."

The HEW guidelines provided that structural changes, determined pursuant to the foregoing to be necessary, should be made within three years.

"Provided, that, if the program is a particular mode of transportation (e.g., a subway system) that can be made accessible only through extraordinarily expensive structural changes to, or replacement of, existing facilities and if other accessible modes of transportation are available, the federal agency responsible for enforcing Section 504 with respect to that program may extend this period of time...for a reasonable and definite period..."

As a result of the HEW guidelines, DOT issued final regulations, the 504 Regulations, governing steps which UMTA recipients must take to provide transportation for the handicapped. This transition plan is a direct result of the Regulations. The basic provisions of the 504 Regulations are described below. A concept of "program accessibility" is introduced. Each mode has a different definition of "program accessibility" and a different time frame for reaching it. In addition, new vehicles or facilities purchased or built after certain dates must be accessible. "Program accessibility" has two components:

1. Accessibility to handicapped persons who can use steps must be provided throughout the entire transit system by July 2, 1982. This target group includes the blind, the deaf, and the semi-ambulatory.
2. Accessibility to handicapped who cannot use steps should also be provided by July 2, 1982, unless extraordinary expenses would be required to do so. The costs of elevators in transit facilities and lifts on bus or rail vehicles are generally considered by UMTA to be extraordinary expenses. Extended deadlines for reaching "program accessibility" vary according to the mode, as follows:

Fixed-Route Bus	July, 1989
Rapid rail facilities	July, 2009
Rapid rail vehicles	July, 1984
Commuter Rail facilities	July, 2009
Commuter Rail vehicles	July, 1989
Light Rail facilities	July, 1999
Light Rail vehicles	July, 1999
Trolley Coach vehicles	Discretionary
Ferry	Discretionary
Interim Service Vehicles & Facilities	July, 1982

Table B.1 describes the requirements of the 504 Regulations in more detail. A full copy of the Regulations is available at the MBTA.

TABLE B-1 PROGRAM ACCESSIBILITY BY MODE

MODE	PROGRAM ACCESSIBILITY	MAXIMUM NO. OF YEARS FOR ACHIEVEMENT AND DEADLINE DATE	DATE AFTER WHICH NEW VEHICLES MUST BE ACCE- SSIBLE TO WHEELCHAIRS
Transit Bus	System accessible to handi- capped persons who can use steps. At least $\frac{1}{2}$ of peak hour service must be acces- sible to wheelchairs; during off-peak hours, buses acces- sible to wheelchairs must be used first.	10 (July 1989)	July 1, 1979
Commuter Rail	Only key stations need be accessible to wheelchairs; all must be accessible to persons who can use steps; 1 vehicle/train must be acces- sible to wheelchairs.	30 Years for Stations (July 2009) 10 Years for vehicles (July 1989)	Dec. 31, 1982 (July 1, 1979 for handi- capped persons who can use steps)
Rapid Transit	Only key stations need be accessible to wheelchairs; all must be accessible to persons who can use steps; 1 vehicle/train must be acces- sible to wheelchairs. Also, a wheelchair connector system must be operating between accessible and inaccessible stations.	30 Years for Station (July 2009) 5 Years for vehicles (July 1984)	July 1, 1979 (gap closing device by 1983, if necessary)
Light Rail	Only key stations need be accessible to wheelchairs; all must be accessible to persons who can use steps; at least $\frac{1}{2}$ peak hour service must be accessible to wheelchairs; during off-peak hours, vehicles accessible to wheelchairs must be used first.	20 (July 1999)	Dec. 31, 1982 (July 1, 1979 for handi- capped persons who can use steps)

TABLE B-1 PROGRAM ACCESSIBILITY BY MODE (Cont.)

MODE	PROGRAM ACCESSIBILITY	MAXIMUM NO. OF YEARS FOR ACHIEVEMENT AND DEADLINE DATE	DATE AFTER WHICH NEW VEHICLES MUST BE ACCESSIBLE TO WHEELCHAIRS
Trackless Trolley (Trolley Coach)	System when viewed in its entirety is accessible to handicapped persons, including wheelchair users.	Possible extension beyond 3 years; up to the discretion of the DOT Secretary.	--
Paratransit	System when viewed in its entirety is accessible to handicapped persons, including wheelchair users.	3	July 1, 1979 (Although new vehicles need not be accessible if the system can remain in compliance without them being accessible.)

- 28.1 Transportation terminals shall include but not be limited to airports bus and train stations.
- 28.2 Overhead protection and/or snow melting provisions shall be incorporated in the immediate exterior area of the terminal entrances.
- 28.3 Where the means of egress includes change of level, accessible alternatives shall be provided for the physically handicapped.
- 28.4 To facilitate horizontal circulation, the following shall be provided:
 - 28.4.1 Distance between platform and vehicle at boarding platform shall not exceed two (2) inches.
 - 28.4.2 The edge of the platform shall have a band of different texture and color of at least eighteen (18) inches in width warning of a danger zone.
 - 28.4.3 Rest area with seating at intervals not to exceed two hundred fifty (250) feet.
- 28.5 Ancillary facilities (public toilet, telephone, etc.) shall comply with these Regulations and such facilities shall be identified as accessible.
- 28.6 Fare transaction areas and entry gates shall be accessible to physically handicapped persons.

FIGURE B-1 Excerpt from
MASS. A.B. BOARD REGULATIONS -
TRANSPORTATION TERMINALS
(Page 50)

C. THE TRANSPORTATION HANDICAPPED

The Transportation Handicapped (TH) are those persons who are unable to use transit effectively because of physical or mental disabilities and the barriers which exist in the existing MBTA system. This group is the target of the 504 Regulations. The group was extensively described in the MBTA "Master Plan: Transport Services for Persons with Special Needs". The information herein is condensed from that report.

The TH definition is given in the federal regulations as:

"Elderly and handicapped persons" means those individuals who, by reason of illness, injury age, congenital malfunction, or other permanent or temporary incapacity or disability, including those who are non-ambulatory wheelchair-bound and those with semi-ambulatory capabilities, are unable without special facilities or special planning or design to utilize mass transportation facilities and services as effectively as persons who are not so affected."

Section 609.3, Federal Register, Vol. 41, No. 85, Friday, April 30, 1976, pp. 18239.

The Master Plan estimated that 129,000 TH persons resided within the MBTA region as shown in Figure C-1. These persons were distributed among eight mobility limitation classifications as shown in Figure C-2.

The socio-economic characteristics, travel patterns, and attitudes of the TH were documented extensively in the Master Plan. The reader is referred to this source for a full discussion.

Briefly, the conclusions reached in the Master Plan as they apply to this Transition Plan are:

- o Transportation handicapped people are distributed throughout the region. Some localities do have higher percentages than others, but in general, the TH population distribution is about the same as the overall population distribution.
- o Many of the TH can either use transit today or are institutionalized/house-bound and have limited ability to travel. Therefore, the market for handicapped transportation does not include all TH persons.
- o Wheelchairs users are the most impacted group of the TH. There are about 6,000 wheelchair users in the MBTA region, constituting about .21% of all people residing in the area.

Total Projected Population	2,858,000
Total Elderly Population (65 and older)	319,000
Percent Total Population: Elderly	11.2%
Non Elderly Transportation Handicapped (Under 65)	57,000
Elderly Transportation Handicapped (65 or older)	<u>72,000</u>
TOTAL TRANSPORTATION HANDICAPPED	129,000
Elderly Not Transportation Handicapped	<u>247,000</u>
TOTAL TRANSPORTATION HANDICAPPED AND ELDERLY	376,000
Percent Total Population: Transportation Handicapped	4.5%
Percent Total Population: Transportation Handicapped and Elderly	13.1%

FIGURE C-1 ESTIMATE OF TOTAL POPULATION, TRANSPORTATION HANDICAPPED
AND ELDERLY FOR MBTA REGION ROUNDED TO THE NEAREST THOUSAND.

<u>TYPE</u>	<u>CLASS</u>	<u>SUB-CLASS</u>	<u>TOTAL</u>	<u>% OF TOTAL POP.</u>
CHRONIC CONDITIONS	HAS DIFFICULTY USING EXISTING TRANSIT	1. Has Trouble Getting Around	33,984	1.19
		2. Use Other* Aid	8,874	0.31
		SUB-TOTAL	42,858	1.50
	CANNOT USE EXISTING TRANSIT	3. Use Other* Aid	5,924	0.21
		4. Needs Help from Another Person	7,833	0.27
		5. Use Wheel- Chair	5,914	0.21
		6. Confined To House	26,076	0.91
		SUB-TOTAL	45,747	1.60
	TOTAL CHRONIC		88,605	3.10
	7. ACUTE CONDITIONS		7,974	0.28
	8. INSTITUTIONALIZED POPULATION		32,865	1.15
	TOTAL ALL TYPES		129,444	4.53

*Refers to any aid other than a wheelchair, i.e. cane, crutch, walker.

FIGURE C-2 ESTIMATES OF TRANSPORTATION HANDICAPPED WITHIN THE MBTA REGION.

C.1 COMMUNITY PARTICIPATION

Community participation has been an integral part of the transition planning process. Consumers have played a major role in formulating MBTA policy and the content of the Transition Plan. Most consumer comment was channeled through task force meetings and larger public meetings open to all. This section will describe the efforts made by the MBTA to encourage participation and the response received.

In December 1979, the first of a series of open meetings was held, for the purpose of explaining both the 504 Regulations and the kinds of changes expected to be forthcoming as well as encouraging public participation in the planning effort. Publicity for this meeting included radio public service announcements, newspaper articles and announcements on current events tapes available to visually impaired people. In addition, a number of major Social Service Agencies were contacted by telephone. However, the major thrust of this outreach effort was a mass mailing covering all the registered riders (2,350) for THE RIDE as well as human service agencies, and handicapped individuals throughout the MBTA region. Creation of a mailing list of approximately 4,000 names, (exclusive of THE RIDE) was possible thanks to several organizations representing or serving disabled people which kindly donated their mailing lists to the MBTA.

Early in 1980, a structure was developed to maximize the exchange of information. It consisted of utilizing a combination of individual task force and general meetings. Three consumer

task forces were formed to delve into details concerning each of the following topical areas.

- o Policies and Practices Task Force: to assess MBTA policies and practices and to recommend remedies for any discrimination against handicapped people.
- o Facilities and Rail Equipment Task Force: to assess current MBTA office buildings, stations, vehicles, and rail lines and to recommend ways of making them accessible.
- o Fixed Route Bus and Paratransit Task Force: to discuss the implementation of lift bus service and design of future paratransit.

The task force met regularly, often weekly, and usually at night to encourage maximum attendance. They then pooled their knowledge at open monthly meetings where everyone could discuss the task forces' findings and recommendations.

Task force membership lists appear in the Appendix. While a few of the members were representatives of agencies or private operators, most were handicapped consumers representing a range of handicaps. Regular participation varied among the task forces, ranging from five persons in one task force to twelve persons in another. Two of the task forces' meetings were conducted by members. Each of the three had designated one member who acted as liaison to the Office for Special Needs. In mid-summer, the consumers elected a moderator who thenceforth conducted

the general meetings, thereby realizing a further expansion of their role in the planning process.

The general monthly meetings had a fairly regular attendance of 20 - 40 people. These meetings were normally announced through mailings, press releases, events tapes, and a newsletter with a large circulation aimed at the rehabilitation community. Interpreters for the deaf were provided upon request, and materials were usually typed in large print to aid the visually impaired. Materials distributed were normally also put on tape for the benefit of those who could not read.

In addition, the MBTA Special Needs Advisory Committee (SNAC) was kept apprised of the general progress achieved during the 504 planning effort. Unlike the 504 committee, SNAC is an ongoing committee which has been advising the (T) on matters concerning special needs for several years. This committee consists of principally consumers, mostly handicapped or elderly, and representatives of advocacy groups and state agencies. Many SNAC members were also members of the transition plan advisory task forces.

Site visits were offered as a means of further increasing familiarization with the current transit system. Three site visits open to everyone were: (1) a partial tour of the rapid transit system, (2) a visit to THE RIDE and a partial tour of the light rail system, and (3) a screening of training films. Other site visits related to rail service were held at the request of the Task Force on Facilities and Rail Equipment primarily for the benefit of its members.

In an attempt to elicit comment from individuals and from groups other than those normally represented at the regular 504 and SNAC meetings, four additional steps were taken. First, a letter was mailed to all 16(b) (2) operators, chaircar operators, and private bus carriers in the MBTA region, 105 in all. Second, about 1500 taxi operators were invited to participate in the 504 planning process. Third, the MBTA's Advisory Board members, who represent the 79 cities and towns with the region, were contacted by mail. Fourth, two regional meetings were held for the benefit of suburban dwellers, to provide them with information and solicit their comments.

In all, 55 formal meetings were held as indicated on Table C.1-1. In addition, regular telephone contact was maintained with some of the most active participants and informal meetings were occasionally held with individuals or small subgroups.

Throughout the planning process, comments and recommendations were sought from the public, who were encouraged to attend meetings, to call or write in, or to submit position papers to the MBTA. Brief radio interviews also appealed for public involvement. Although the predominate means of commenting was through the task force and general meeting structure, a few position papers and letters were also received. A group of visually impaired consumers and mobility instructors met as an independent subcommittee to develop recommendations based upon the needs of those with that particular disability.

Additionally, each of the three Task Forces has developed a set of recommendations which were voted upon and approved by the planning groups as a whole. Many of these recommendations have been incorporated into this document. In any case, all recommendations appear in the Appendix.

The MBTA believes that this advisory process (which is still continuing) has been thorough and complete. The number of meetings has been far in excess of minimum planning requirements. Many consumers have contributed significantly to the work of the task forces. Large portions of this plan, therefore, represent the views of both the MBTA and its consumer advisors.

		<u>NUMBER</u>
General Meetings		8
Task Force Meetings		37*
Policies and Practices	13	
Facilities and Rail Equipment	15	
Fixed Route Bus and Paratransit	11	
Site Visits		8**
Regional Meetings		<u>2</u>
TOTAL		55

* On two occasions, joint meetings were held.

**Including 5 for the Facilities and Rail Equipment
Task Force

TABLE C.1-1-FORMAL CONSUMER MEETINGS PRIOR TO PUBLIC HEARING.

D. IDENTIFICATION OF EXISTING VEHICLES, FACILITIES, POLICIES AND PRACTICES

This Section is made up of two distinct parts, the first (D.1) deals with vehicles and facilities. The second (D.2) with policies and practices.

The policies and practices portion is complete in an of itself. That is, it includes an inventory and recommends changes necessary for conformance with Section 504.

The part on vehicles and facilities is more of an inventory, the actual planning for program accessibility is contained in Section E.

D.1 EXISTING MBTA VEHICLES AND FACILITIES

The MBTA operates a large urban transit system, which utilizes a variety of modes and facilities. In addition, the MBTA facilities are not static, but are changing; the MBTA is in the midst of a large construction and renovation program which will significantly change the extent of the MBTA network. The purpose of this chapter is to summarize the existing system, the barriers in it, and the currently programmed capital changes.

1. System Overview

The total MBTA system consists of about 170 bus routes, 3 rapid rail lines, 5 light rail lines, 10 commuter rail lines, 4 trolley coach lines, 5 suburban transit programs and a handicapped para-transit service. These services operate in a variety of environments, including on-street, reserved median grade-separated right-of-way, subway and elevated.

This diversity contributes to the extreme heterogeneity of the system. Boston has the country's oldest subway tunnel, dating to 1897, which has been in continuous use for 83 years. Some summary statistics describing the MBTA as of 1979 are given in the attached Table D.1-1.

2. Accessibility of Current System

Each mode must be treated differently in assessing the barriers which currently exist. By and large, the system is not accessible to the wheelchair-bound, although some Rapid Transit Stations do have elevators, and new accessible transit stations are in the process of construction. Planned modernization of selection stations will incorporate accessibility. Also, several Rapid Transit stations are at grade, and could be considered partially accessible to wheelchairs. None of the buses, commuter rail, light rail, or trolley coach services are currently accessible to people in wheelchairs. However, some lift buses are on order, e.g. 5 retrofitted vehicles are presently on the property and 21 additional units will be delivered in Spring of 1981.

3. Barrier Inventory

The degree of accessibility of the MBTA to the handicapped who can use steps varies from station to station and mode to mode. The exact determination of existing system accessibility depends upon those features of the existing system considered to be barriers. It is well-known that many blind, deaf, and semi-ambulatory persons use the MBTA today. However, many parts of the system do not meet relevant architectural standards, particularly those parts which are the oldest. (See fig. D.1-2 for a complete inventory.)

4. Bus Vehicle Inventory

Vehicles are a major component of the MBTA's overall inventory. Aside from rapid transit line construction and modernization, the vehicles are the pieces of equipment which are changed and replaced most often.

Buses are the most frequently replaced vehicle. The total number of active MBTA buses and their distribution, as estimated for December, 1980, are shown in Figure D.1-3. A total of 242 buses were manufactured after 1977 and 868 before 1977.

The MBTA has a nominal bus replacement schedule of 100 vehicles per year. However, the exact number depends more on the capital funding

available for bus purchases and the actual purchase of vehicles when bids are opened. Because bus prices have been increasing rapidly recently, more so than funding, a figure of 80 new buses per year is probably a more accurate figure. Purchases are not made every year but are made in multiple lots every few years. The anticipated bus replacement schedule, and its implications for the transition plan, are given in a later section.

5. Rail Vehicle Inventory

The rail car inventory is somewhat in a state of flux. The MBTA is an ongoing process of upgrading the fleet on practically every line. Figure D.1-4 gives the inventory. The Blue Line has 70 new cars which are just being placed in service. The Orange Line likewise has 120 new cars which are replacing the fleet of 100 old cars. On the Red Line, 168 cars operate.

The light rail fleet consists of older PCC (Presidential Conference Committee) cars and new Boeing cars. Although the "T" has many PCC cars, only about 100 are currently serviceable. Also, the Boeing cars are unreliable; the active fleet is about 100.

The commuter rail fleet is also changing. The "T" owns 60 new Pullman-Standard cars and is currently rebuilding or planning to rebuild 93 Budd cars. These 153 vehicles will make up (partly) the commuter railroad fleet in the future.

6. THE RIDE

The MBTA currently operates a many-to-many, door-to-door demand-responsive paratransit service known as THE RIDE. The service is only available within a certain geographic area in and around downtown Boston. Users must live within this area in order to register for THE RIDE. The area is described in Figure D.1-5 Eligibility is restricted to the transportation handicapped, of whom an estimated 21,962 now live in the service area.

THE RIDE service has a user charge of \$.75 per trip. A registered user must buy tickets in advance from the MBTA and use the tickets on the vehicle. Generally, rides must be reserved at least 24 hours in advance, although a significant (44%) percentage of all trips are recurring subscription trips.

THE RIDE is operated by a private non-profit corporation called Transporting the Handicapped and Elderly in Massachusetts (THEM, Inc.). The

MBTA contracts with THEM to operate the entire service, subsidizing the cost of doing so. Today THE RIDE consists of a fleet of 34 wheelchair accessible vans and mini-buses, which are owned by the MBTA, but are leased to THEM, Inc. THEM has its own facilities in Watertown, Massachusetts, and carries out all facets of operating the service in accordance with its contract with the MBTA and an operating policy administered by the O.S.N.

It should be noted that this sort of service is inherently expensive and recent economic constraints placed upon the entire MBTA have made operating monies fare more difficult to obtain. This is a trend we expect will continue.

1979 STATISTICS

Population of 79 Communities in (T) District (1970 U.S. Census)	2,763,410
The (T) operates about 1,200 vehicles travelling 137,000 miles each weekday	
Number of Bus Routes	172
Number of Streetcar Routes	5
Number of Rapid Transit Routes	3
Number of Trackless Trolley Routes	4
Number of Commuter Rail Routes	10
Buses	1,079
Streetcars (165) and Light Rail Vehicles (135)	300
Rapid Transit Cars	357
Trackless Trolleys	50
Commuter Rail Vehicles: 40 Locomotives; 161 Coaches; 93 Rail Diesel Cars	294
Weedkay Passengers (Estimated)	553,000
Commuter Rail -	33,000
Basic (T) System -	520,000
Annual Passengers (Estimated)	164,300,000
Commuter Rail	8,700,000
Basic (T) System	-155,600,000
Rapid Transit Stations, including Riverside & Mattapan Lines	72
Commuter Rail Stations	84
Miles of Track (One Way) in Subway	15
Miles of Track (One Way) on bridges, Elevated or Surface	45
Rapid Transit Route Miles (One Way)	38.9

1979 STATISTICS
(continued)

Red Line:	Harvard-Ashmont, 9.5; Harvard-Quincy, 11.7	
Orange Line:	Forest Hills-Oak Grove, 10.9	
Blue Line:	Bowdoin-Wonderland, 6.8	
Rapid Transit Route Miles Under Construction (One Way)		10.65
Red Line Braintree Ext., 3.2; Red Line Northwest Ext., 2.75;		
Southwest Corridor Orange Line Relocation, 4.7		
Proposed Rapid Transit Route Miles (One Way) - Blue Line Ext. to Lynn		4.5
Streetcar Route Miles (One Way)		35.1
Riverside-North Station, 12.5; Arborway-Park, 5.5; Lake Street-Lechmere, via Commonwealth Ave., 8.0; Cleveland Circle-Lechmere, via Beacon Street, 6.6; Ashmont-Mattapan, 2.5		
Trackless Trolley Route Miles (One Way)		15.75
Bus Route Miles		710
Commuter Rail Route Miles (One Way)		259
North Station: to South Action, 25; to Lowell, 25; to Woburn, 10; to Reading, 12; to Ipswich, 28; to Rockport, 35.		
South Station: to Framingham, 21; to Needham, 12; to Franklin, 28; to Stoughton, 19; to Providence, 44.		
Total Route Miles Operated		<hr/> 1,074.75

TABLE D.1-1 SYSTEM SUMMARY

Mode	Number of Units	Wheelchair Accessibility	Blind, Deaf, Semi-Ambulatory Access
Bus	1079 buses	1 lift bus for charters 5 lift buses in service 21 lift buses to be retrofitted	All buses are accessible to handicapped who can use steps; all have non-slip floors, and virtually all have priority seating. Approximately 300 are kneeling buses.
Rapid Rail	45 stations	*7 fully or partially accessible to wheelchair	Station barriers include fare gates, step nosings; insufficient edge markings, handrails, graphics, and lighting.
	357 cars	All cars accessible to wheelchairs	Vehicle barriers include lack of priority seats on some cars.
Light Rail	13 stations 4 surface lines 135 LRVs 165 PCCs	No stations accessible No surface lines accessible No vehicles accessible to wheelchairs	Same station barriers as above. Vehicle barriers include lack of priority seats on some vehicles, step nosings, lack of center stanchions on LRV side doors, and no contrasting color on PCC steps.
Commuter Rail	85 stations 60 Pullman Coaches 93 Rail Diesel Cars	All low-platform All Pullmans accessible to wheelchair if hi-platform. All Rail Diesel Cars to be rebuilt as accessible.	Station barriers include step nosings; insufficient platform edge markings, handrails, graphics, lighting; lack of curb cuts, shelters, handicapped parking spaces; difficulty crossing tracks. Vehicle barriers are: no priority seating, step nosings, and insufficient vestibule lighting.
Trolley Bus	50 vehicles	None are wheelchair accessible	All are accessible to handicapped who can use steps.
* Oak Grove State Street (Partial) Washington (Partial) Park Street Ashmont Braintree Harvard/Brattle			

FIG. D.1-2 INVENTORY OF EXISTING FACILITIES
AND BARRIERS THEREIN

<u>NUMBER OWNED</u>	<u>NUMBER SERIES</u>	<u>MANUFACTURER'S MODEL</u>	<u>YEAR BUILT</u>	<u>YEARS OLD (1981)</u>
1	500-549	GMC 4516	1960	21
21	3500-3548	GMC 5302	1961	20
2	200-324	GMC 5301	1962	19
45	5000-5149	GMC 5303	1963	18
2	6681-6689	GMC 4519	1963-67	18-14
112	6000-6219	GMC 5303	1966-67	15-14
51	6500-6579	GMC 4519	1966-67	15-14
26	6300-6329	GMC 5305A	1970	11
28	7500-7529	GMC 4521A	1970	11
39	7000-7039	FLX III-CDD 51	1970	11
49	7050-7099	FLX III-CDD 061	1972	9
160	7200-7364	FLX III-DDD 051	1972	9
81	7600-7684	FLX III-DDD 051	1972	9
49	7100-7149	FLX 5309681	1975	6
74	7365-7439	FLX 5309661	1975	6
88	9200-9287	AMG 9640B	1976	5
40	9700-9739	AMG 9635B	1976	5
50	9000-9049	AMG 9640B	1978	3
40	9300-9339	AMG 9640B	1978	3
25	6400-6424	T6H 5307N (GM)	1979	2
<u>127</u>	5200-5326	GM Canada	1980	1
1,110				

PROJECTED MBTA BUS FLEET - 12/80

FIGURE D.1-3

<u>Blue Line</u>	<u>Date Mfd.</u>	<u>Number</u>
No. 1 and 2	1924	46
No. 3	1951	40
No. 4	1980-81	70 (Replacement)
 <u>Orange Line</u>		
No. 11		100
No. 12	1980 (new)	120
 <u>Red Line</u>		
No. 5 (Bluebirds)		92
No. 1 (Silverbirds)	1969-70	76*
 <u>Light Rail</u>		
PCC	various	130 (approx.)
Boeing (LRV)	1976-79	165 (approx.)
 <u>Commuter Rail</u>		
Pullman-Standard	1975-80	60
Budd (Rail Diesel Cars)	various	93

*Rebuilt interior includes special area for wheelchairs.

FIGURE D.1-4
RAIL CAR INVENTORY

<u>CITY/AREA</u>	<u>NUMBER OF TRANSPORTATION HANDICAPPED</u>
BROOKLINE	3,643
ALLSTON/BRIGHTON	3,411
KENMORE/FENWAY	2,254
SOUTH END/CBD	1,247
ROXBURY (INNER)	1,333
BEACON HILL/CBD	1,077
CAMBRIDGE	4,775
CHARLESTOWN	464
SOUTH BOSTON	2,237
EAST BOSTON	1,501
TOTAL	<u>21,962</u>

FIGURE D.1-5 TRANSPORTATION HANDICAPPED POPULATION
WITHIN THE CURRENT RIDE SERVICE AREA

D.2 POLICIES AND PRACTICES

In accordance with the Section 504 Regulation, the M.B.T.A. has reviewed and evaluated its policies and practices to determine whether they have the effect of discriminating against people based upon handicap. This review has been accomplished with the assistance of individuals with disabilities and advocates who have met over the past six months as the Task Force on Policies and Practices. In addressing the policies and practices of different M.B.T.A. departments, the task force decided it would not be able to reach a consensus on what was or was not discriminatory. It was decided, therefore, to develop its recommendations based upon what it thought was necessary, regardless of whether or not discrimination was taking place. The group's recommendations appear in the Appendix.

Another committee, consisting of visually impaired consumers, advocates and professionals in the field of education and/or rehabilitation of the visually impaired, met on its own to develop a set of recommendations on improving accessibility of public transit to consumers with visual impairments.

These comments, along with those of each Task Force, can be found in the Appendix.

D.2.1 SAFETY AND EMERGENCY PRACTICES AND SAFETY AND SENSITIVITY TRAINING FOR PERSONNEL

The current training program is exclusively for operating staff involved with transportation service, e.g. drivers, guards, inspectors, starters, collectors, supervisory staff. The program includes video tapes and films covering, among other topics, passenger relations and evacuations. Attention is focused on persons with special needs in the tapes and during discussion, and included in the rule books are rules pertaining specifically to assisting elderly and handicapped people and permitting guide dogs on the system. One of the tapes, for example, encourages drivers to wait until elderly and handicapped people are seated before moving the vehicle. Moreover, specific evacuation procedures address passengers who are either wheelchair bound or blind and travelling with guide dogs. Such people are to be evacuated with the flow of traffic, with other passenger, if necessary, being organized to carry them. Finally, mock evacuations are staged periodically. These provide an opportunity for operating staff to practice what they have learned in training.

In the future not only will employees be trained and re-trained on a regular basis, but greater emphasis will be placed on both awareness and sensitivity training for operating personnel. Training for fixed route bus operators will be adapted to include proper use of wheelchair lifts; some of this training may be provided as part of a lift-bus demonstration program. The Special Needs Advisory Committee will be requested to consult with the

M.B.T.A. as its new, expanded training program is developed.

Drivers for the M.B.T.A.'s dial-a-ride service known as THE RIDE currently receive extensive training for handling people who are physically and/or mentally disturbed. This training includes cardio-pulmonary resuscitation, sensitivity training, and first aid as well as use of the special accessibility equipment on the vans. Should some type of accessible service, in the future, be provided by M.B.T.A. personnel, similar in-depth training would be provided.

Personnel, other than operating, whose position entails a great deal of contact with the general public, will also be considered for sensitivity training.

D.2.2 INTERMODAL COORDINATION

Coordination between the various M.B.T.A. modes (bus, rapid rail, light rail and commuter rail) is an integral part of this plan. Coordination with other modes of public transportation, not operated by the M.B.T.A., is also important. Where these modes are covered by the federal regulations, and interface with the M.B.T.A., accessible intermodal transfers will be effected.

AMTRAK passenger rail service is the principal federally funded service which will be accessible. As part of the Northeast Corridor Improvement Project, all stations which receive AMTRAK service will be upgraded. South Station, Back Bay, Forest Hills, and Route 128, the only AMTRAK stations in the M.B.T.A. region, will be all high platform, completely accessible in the future.

The Airport Station on the Blue Line has been designated as a key station to allow for interface with Logan Airport, which is accessible. The M.B.T.A. supports the provision of accessible bus service at the Airport, which is operated by Massachusetts Port Authority.

Intercity buses, taxicabs and other forms of privately owned transportation serving the public are not federally funded and, therefore, are not subject to the 504 Regulations. The M.B.T.A. supports accessibility in these modes and will work to effect accessible interface whenever these modes do choose to become accessible.

D.2.3 SOCIAL SERVICE AGENCY COORDINATION

There are three current efforts underway in the M.B.T.A. region to implement some degree of coordination of all special services and programs in the community. The M.B.T.A. supports these efforts, although it does not propose that these coordinated services be counted as part of the interim or alternative services. As part of the M.B.T.A. Master Plan, prepared in 1977, a survey of the M.B.T.A. region discovered some 504 agencies claiming to offer some type of transportation to their clients. Over 60,000 passenger trips per week were provided by these agencies. The total volume of agency transportation is probably roughly the same today - it may even have grown. These three efforts are only the initial steps toward a potential region-wide coordination system.

(a) Coordination Study:

The Central Transportation Planning Staff (CTPS) in conjunction with the Executive Office of Transportation and Construction and M.B.T.A., is undertaking a study to assess the feasibility of a brokerage system for the region's elderly and handicapped services. The study will review needs, brokerage ideas, potential suppliers, and brokerage alternatives. The study is currently underway.

(b) Transportation Accounting Consortium

Massachusetts has applied for a federal grant as part of a six-state consortium studying ways to simplify

billing and accountability procedures for agency transportation. The work group responsible for this project consists of representatives from Executive Office of Transportation and Construction, Department of Elderly Affairs, Department of Public Welfare, and Department of Social Service. Massachusetts will study Titles XIX (Medicaid) and XX (Social Services), including an analysis of book-keeping regulations, financial accountability, billing procedures and program service accountability. The study is applicable to the whole state, including the M.B.T.A. region.

(c) Lead Agencies

The Executive Office of Transportation and Construction has recently designated eleven agencies within the M.B.T.A. region as lead agencies under the 16(b) (2) program. Together, the eleven agencies cover most, but not all, of the M.B.T.A. region. Their purpose is to assist in coordinating transportation in their service area. Although formal coordination plans are unavailable as yet, these designated agencies could form the nucleus of a future regional coordination/consolidation system. The eleven agencies are described in the attached table.

TABLE D.2-1 DESIGNATED 16(b) (2) LEAD AGENCIES

Agency Title	Service Area	Description of Program
1. Federated Dorchester Neighborhood Houses (FDNH)	Dorchester	Seven vehicles provide over 700 trips/day. Major trip purposes are medical and nutritional.
2. Council of Elders	Boston	Fourteen vehicles provide about 5000 trips per month to elderly and handicapped. Transportation budget exceeds \$300,000 per year.
3. Southwest Boston Senior Services	Roslindale, Hyde Park, West Roxbury	Seven vans provide 67,000 trips per year, mostly to elderly. Yearly budget exceeds \$172,000.
4. Transporting the Handicapped and Elderly in Massachusetts, Inc. (THEM, Inc.)	Metropolitan Boston	Seven chair-car vehicles operated for handicapped. (Excludes RIDE service)
5. West Suburban Elder Services (WSES)	Western Suburbs of Boston	Three vehicles for the frail elderly and handicapped. Leased and operated for WSES by THEM, Inc.
6. Chelsea - Revere - Winthrop Transportation (C-R-W)	Chelsea, Revere, Winthrop	Six vehicles for transportation of elderly to a variety of purposes. Total budget about \$104,000/year.
7. Middlesex Community Services, Inc.	Northern suburbs of Boston, Middlesex County	Nineteen vehicles provide over 300 trips/day, chiefly for medical and nutritional purposes.
8. Minuteman Home Care, Inc.	Fifteen towns in Middlesex County: Woburn all the way to Harvard	Taxi and van service providing about 1900 trips/mo. to medical and nutritional sites.

TABLE D.2-1 (Cont.)

<u>Agency Title</u>	<u>Service Area</u>	<u>Description of Program</u>
9. Greater Lynn Senior Services	Greater Lynn area	Eight vehicles provide 410 trips/day to elderly and non-ambulatory persons.
10. North Shore Elder Services/ United Cerebral Palsy of the North Shore (a joint project)	Greater Lynn area	Four vans or station wagons provide about 470 trips/day.
11. Far-Fetched Transportation, Inc.	North Shore: Beverly to Cape Ann	Eight vehicles provide 2600 trips/mo. Specialized transportation agency open to all elderly/handicapped. Contracts with Cape Ann Transportation Authority. (CATA).

D:2.4 MARKETING, INFORMATION AND GRAPHICS

To date, marketing has not in general been considerate of persons with special needs. In deference to people with visual impairments, however, maps of the rapid transit system and several bus routes were once put in braille and large print, but the supply of maps has long since been exhausted. In addition to published schedule cards for bus routes and brochures for commuter rail service, telephone numbers are publicized for routing and schedule information. However, in that the M.B.T.A.'s information number is very difficult to reach and is only answered during limited hours, it does not provide the same level of access to information for the visually impaired and non-reading population as does the combination of written materials and phone information for readers. The M.B.T.A. will revise materials for the special needs programs, specifically application forms, marketing brochures, reduced fare cards, etc. Some materials for THE RIDE are produced in large print and others are in small print. Thus, accessibility of this information to people with visual impairments or people who are nonreaders is not equal to that afforded readers.

Furthermore, with respect to people with severe hearing impairments, written materials are the only source of information services and fares. Indeed there is no way other than writing for a deaf person to communicate with M.B.T.A. staff unless the deaf person supplies an interpreter. The absence of a

telephone communication system for the deaf could be seen as an example of discrimination based upon handicap, a situation which must be resolved.

In order to rectify the aforementioned inequities, the M.B.T.A. will take the following steps:

- (1) TDD (telephone device for the deaf) equipment will be installed at appropriate location(s) within the Authority. This should give the hearing impaired comparable access to information.
- (2) An informational booklet will be developed for blind and other visually impaired individuals. The booklet will include selected route and schedule information and useful telephone numbers. The print will be grade 1, braille, a simple and commonly used form of braille.
- (3) A brochure will be developed for people with disabilities, indicating special needs services and useful telephone numbers. Either as part of or separate from this brochure, information on stations accessible to wheelchairs will be disseminated.
- (4) Marketing materials at the M.B.T.A. aimed at the special needs population and at the public (i.e. Prepaid passes), will be considerate of the needs of people with sensory disabilities.

- (5) M.B.T.A. Bulletins normally regarding changes in transit or commuter rail schedules or routing will either be printed in large type or include a statement in large print with a phone number to call for information, particularly for people with visual impairments.
- (6) Brightly colored graphics, tactile graphics and visual symbols will be used in the informational and directional signage system for the benefit of vision impaired people and nonreaders, when feasible.
- (7) A car card program will be instituted to inform the riding public of M.B.T.A. programs for elderly and handicapped people and to sensitize passengers to people with disabilities.
- (8) The M.B.T.A. will use car cards or other means to notify the public how to lodge service related complaints.
- (9) The M.B.T.A. will formalize, adopt, and make available its procedure relating to service complaints alleging discrimination.

D.2.5 LEASING, RENTAL, PROCUREMENT, AND OTHER ADMINISTRATIVE PRACTICES

When the Authority rents additional space for any aspect of the M.B.T.A.'s operation, e.g., garage or office space, the two prime considerations are location and cost. If any alterations are necessary, they are made by M.B.T.A. Thus, where it is appropriate and reasonable, the M.B.T.A. will, in the future, make its facilities accessible to handicapped people. Included as "appropriate" would be buildings to which the public generally has access, e.g., those in which meetings attended by the public are held, and those in which such functions as employment and giving out materials for the public are centered, and also where making a location accessible is deemed a reasonable accommodation.

The M.B.T.A. is presently in only partial compliance with the Regulation's requirement for accessibility in such facilities. With respect to procurement of new vehicles, the M.B.T.A. will henceforth purchase and lease vehicles in accordance with Section 504.

D.2.6 INVOLVEMENT OF EXISTING PRIVATE AND PUBLIC OPERATORS

Other transit operators have been invited to join the the 504 planning process. In particular, all the private bus operators which have routes in the M.B.T.A. area were notified of the planning effort as were 1500 taxi operators. Contact has also been made with the only other transit authority in the Metropolitan Area Planning Region, Cape Ann Transit Authority (CATA).

CATA, unlike the private bus operators and taxi companies must also comply with Section 504. It will therefore be possible,

when accessible vehicles are in place, to transfer between the two accessible systems. In addition, the M.B.T.A. and Brockton Area Transit (BAT), which is located outside the Boston Metropolitan Planning Area, have service connecting Boston and Brockton. As BAT must also be in compliance with 504, there is good reason to place accessible vehicles on those routes as soon as possible.

The M.B.T.A. controls the use of its property by other transportation providers although this control is exercised to only a limited degree. For example, on the Green Line, Newton Yellow Cab, through the bidding process, has been selected to provide cab service from 5 stops in Newton. Newton Yellow Cab, therefore, is the only concern that is permitted to have its cabs park at these stations waiting for passengers disembarking from the M.B.T.A. In similar fashion, both local and national inter-city bus companies are permitted, for a fee, to utilize M.B.T.A. facilities, including waiting rooms, for picking up and delivering passengers.

As more and more rapid and commuter rail stations become accessible, there will be increased opportunities for accessible interface with other providers. However, it must be remembered that not all M.B.T.A. stops have parking or busways usable by other vehicles and therefore subject to M.B.T.A. control. When city streets must be used, the M.B.T.A. has no control over what providers use them. In light of the need for coordination with other providers, including accessible services, the M.B.T.A. will endeavor to give preference to taxi and private bus operators which use accessible vehicles in granting contracts for use of M.B.T.A. facilities.

D.2.7 REGULATORY REFORMS

The only known regulatory barrier to accessibility at the M.B.T.A. is a Department of Public Utilities' (D.P.U.) requirement in the area of employment. The D.P.U. medical examination (which must be passed by M.B.T.A. applicants for certain positions) precludes people who are missing a leg, foot, hand or arm. The M.B.T.A. will request that the D.P.U. review its exam to examine the continued applicability of the requirements dealing with physical condition.

D.2.8 MANAGEMENT SUPERVISION, SECURITY AND MAINTENANCE OF ACCESSIBILITY FEATURES

Accessibility features for handicapped people include such items as elevators, escalators, wheelchair lifts and kneelers (a device which lowers the front right-hand corner of the vehicle so its first step is closer to the ground). At present, there are five elevators in the system, one lift-equipped bus (used only in charter service) and five lift equipped buses in revenue service.

Vehicles are stored in car yards and parking lots, ones which are sometimes outdoors and unlocked. They are regularly checked by the M.B.T.A.'s Police Department, but these checks are not frequent since the size of the force is not balanced with the workload. When lift-equipped buses arrive, a priority will be placed in storing them indoors when feasible.

In order to ascertain lift functioning and provide operators with experience in their use, each lift will be cycled once each day, likely by the operator taking the bus out in the morning. Supervisors, starters and inspectors, in addition to operators, will all be knowledgeable about lift operation and will be able to provide assistance to operators having trouble with their lifts.

More attention is placed on escalators and elevators which are checked several times a day by starters and inspectors. The in-house escalator and elevator repair people try to visit each elevator and escalator daily although this cannot always be done if they become tied up with malfunctioning equipment. Some of the elevators in stations are located near collection booths so have fairly regular supervision by the collectors.

Inasmuch as the police force has only a handful of roving officers on duty during the off peak hours, it is unrealistic to expect accessibility features to receive substantially increased attention from this source. Similarly, since starters, inspectors and elevator/escalator repair people are also continually on the move, they cannot provide continual supervision of such equipment. The M.B.T.A. will in the future be installing most of its elevators and escalators in paid areas of stations with one end of each being in view to the Collector's booth. This may serve to provide some increase in supervision and, hopefully, a reduction in vandalism to such equipment.

In that functioning elevators and escalators are recognized as necessary in order for some disabled people to utilize the rapid transit system, the M.B.T.A. will make the following alterations in its operating policies for this equipment.

- (1) The current practice of keeping escalators and elevators operating only during a portion of the day will be changed so that when practical they will be operating during the hours the station in which they are located are open. However, where two or more nearby escalators provide the same function only one need be operating unless traffic merits more than one.
- (2) Future escalator and elevator contracts will include a two-hour response time within which repair people must come to assess the damage and estimate the time it will take to do the repairs.
- (3) Insofar as possible, repairs of escalators and elevators will be made at night and on weekends as well as during the normal work week.

(4) The (T) will investigate the feasibility of installing a device in elevators and escalators so that notification will be made automatically when the equipment is not operating. Such a system will permit expeditious communication with appropriate personnel for repair.

(5) The M.B.T.A. will investigate providing notice of non-functioning elevators to patrons at elevator doors and in the vicinity of collector's booth. It will also investigate intercoms to find one suitable for M.B.T.A. use in elevators. It will develop a policy for posting a telephone number at elevators so one might call for information/assistance if the elevator is not operating.

- (6) The M.B.T.A. will investigate the possibility of using escalators in reverse mode to help provide interim accessibility.
- (7) In cases of long-term outages of elevators or escalators, two steps will be taken to notify the public. Informational signs will be posted at the elevator or escalator and notification will be put on a tape (likely the service condition tape already in existence) reachable by the public by telephone.

D.2.9 LABOR AGREEMENTS AND WORK RULES

The union contracts, particularly the 589 Contract ' (the major M.B.T.A. union of which most operating staff are members), contains no statement concerning nondiscrimination on the basis of handicap although a Memorandum of Understanding dated August 8, 1979 indicates that Section 127 (No Discrimination) of the contract shall be amended by the addition of the following sentence:

"The parties further agree to abide by the Authority's AA/EEO Plans to the extent that such plans are not inconsistent or in conflict with this agreement."

The Authority will negotiate with Local 589 and other Bargaining Units as necessary towards the goal of inclusion in their contracts

of both a nondiscrimination clause for handicapped people and a commitment to the objectives of 504.

Several work rules appear to be in conflict or potentially in conflict with 504. They are indicated below with appropriate references.*

1.) Making Announcements (several rules in the "Manual",

"Operators' Rules," and "Trainmen's Rules") -

Announcements are required to be made regarding location, delays in service, alternations in service. Implicit in all these rules is "verbal announcements" which may discriminate against non-hearing riders.

2.) No Touching ("Manual, " P.1) - Although this rule is under a section entitled "Courteous", it might serve as a deterrent to providing physical assistance to handicapped people, some of whom require a helping hand, in boarding vehicles for example. The rule is:

"Starters and Inspectors shall always avoid physical contact with others by touching them, poking for emphasis, pushing, backslapping, holding by arm or shoulder, or using any other form of physical restraint."

*"(T) Manual for Transportation Department Train Starters, Instructors, Inspectors, and Starters" (September 25, 1978) - indicated by "Manual"

"(T) Rules for Operators and Other Employees of the Surface Lines" (October 19, 1978) - indicated by "Operators' Rules"

"(T) Rules for Trainmen and Other Employees of the Rail Lines" (August 7, 1978) - indicated by "Trainmen's Rules"

Even though employees are taught to offer assistance to handicapped people (even if it means, for example, a trainmen leaving a train to offer assistance to a blind person on the platform) altering this rule by noting the exception to the no touching provision would bring it into compliance with 504.

- 3.) Dress Code: (General Rule #2 in both "Operators' Rules" and "Trainmen's Rule") - Adherence to the strict dress code for operating personnel might be difficult or impossible for some handicapped individuals. This is a situation where reasonable accommodation might be provided.
- 4.) Leaving a Vehicle Unattended: ("Operators' Rules", General Rule #52 and Additional Rule #110; "Trainmen's Rules", Rail Line Service Rule #62) - A series of steps is to be followed when a driver leaves the vehicle temporarily unattended. These steps, the purpose of which is to ensure safety, may discourage a driver from leaving the vehicle for even a few feet distance to render assistance to someone in need.

As there is no current job descriptions, work rules serve to define the major functions of the employees of the rail and surface lines. They indicate what should and should not be done by specific categories of personnel. One rule requires that staff honor all reasonable requests for assistance, particularly

from elderly and disabled people. However, there may be some dispute over what constitutes reasonable assistance. The rule is interpreted to exclude any lifting, so helping wheelchair users onto a lift would likely be considered exceeding the requirement. But assisting the wheelchair patron in securing the tie down device or in depositing the fare may be covered by the rule. These matters will have to be clarified and may require a change in work rules prior to commencement of lift bus service.

In recognition of the importance of work rules for the safety and comfort of all riders, handicapped or not, the M.B.T.A. will take steps to ensure adherence to existing work rules.

D.2.10 INSURANCE COVERAGE

Public Liability Insurance at the M.B.T.A. is provided in two tiers. The M.B.T.A. is self-insured up to \$2,100,000, and this coverage is extended to a maximum of \$15,100,000 through a purchased policy. To date, no judgment has reached the maximum of the first tier. While concern is sometimes voiced about an expected increase in liability claims with more disabled people utilizing the system, this does not appear to be grounded on fact. However, based upon the recommendation of legal staff and its carrier, the M.B.T.A. may or may not extend the limit of its coverage.

Another insurance matter of relevance to 504 is that relating to second injuries by employees and workmen's compensation. Specifically, if an employee who is disabled sustains

an injury on the job, often no sure way of determining how much of the problem and, therefore, cost results from the presence of the former injury or condition as opposed to the second injury itself. Consequently, it is difficult to assign responsibility for the cost of workmen's compensation. Given more handicapped workers on the property one might expect the rate of second injury claims to increase.

There is presently a mechanism in place through which the M.B.T.A. has access to a second injury fund for state agencies. However, in that (1) this fund is not always well funded, and (2) it is very difficult to assign responsibility for the disability, there might be some financial consequences for the M.B.T.A. as a result of hiring more handicapped people.

D.2.11 EMPLOYMENT

The M.B.T.A. currently has an official policy to recruit, employ, and advance in employment qualified persons in a manner that will not discriminate against an otherwise qualified person because of a physical or mental disability. This policy is updated bi-annually and must be accepted by UMTA and adopted by the M.B.T.A.'s Board of Directors.

Although Section 504 does not require that Affirmative Action be undertaken by the M.B.T.A., it is required to do so under Section 503 and has started developing a program for recruiting disabled people. The M.B.T.A. has already, however, hired a number of handicapped people and has many more who have become disabled while in its employ for whom accommodations have been made.

As the M.B.T.A. more fully complies with the requirements of the 504 Regulation, it will consider the following steps:

- (1) Recruitment materials will include notice of nondiscrimination and identify the designated responsible party within the M.B.T.A.
- (2) Recruitment and advertising for positions will be accomplished in a manner which will not discriminate against individuals with disabilities.
- (3) A brochure will be developed by the M.B.T.A. for distribution of every applicant. It will indicate that the M.B.T.A. does not discriminate on the basis of handicap and will describe rights to reasonable accommodation and indicate the designated responsible party within the M.B.T.A.
- (4) M.B.T.A. employees will be notified periodically that the M.B.T.A. does not discriminate against employees on the basis of handicap and informed of the person within the (T) responsible for coordinating efforts to comply with 504.
- (5) An opportunity will be provided to applicants and employees to indicate any need for reasonable accommodation. This information will be treated as confidential in accordance with voluntary disclosure guidelines.

- (6) Reasonable accommodation will be provided as necessary and appropriate throughout the application and interview process. This might include, for example, provision of materials in large print or reading of information to a visually impaired individual.
- (7) An application for employment form which meets the requirements of 504 will be utilized in the future. Information being voluntarily submitted for Affirmative Action must be maintained in a file separate from standard personnel files.
- (8) The M.B.T.A. will seek funds to cover appropriate accommodation for applicants and employees requiring reasonable accommodation due to a disability.
- (9) A team approach will be utilized in determining what forms of reasonable accommodation are feasible, if this judgment is not made by the applicant/employee and (potential) supervisor, with management making the final decision.
- (10.) For all applicants and employees, the M.B.T.A. will use a medical examination form which is in compliance with 504.

- (11.) When an examining physician finds that an applicant or employee has no limitations which would interfere with said person's ability to perform the essential functions of a particular job, notwithstanding the results of the medical examination, the physician will take appropriate steps to waive the pertinent medical standard.
- (12.) In cases where there is question as to an individual's ability to function in a job, the aforementioned team approach for developing possible forms of reasonable accommodation will be used to determine whether the individual could, with reasonable accommodation, perform the essential functions of the job.
- (13.) Essential job functions of M.B.T.A. positions will be determined and noted so as to facilitate decisions regarding qualifications for work and decisions concerning reasonable accommodation.
- (14.) Staff likely to come into contact with handicapped people will receive sensitivity and awareness training.
- (15.) With respect to a grievance (complaint) procedure for individuals alleging discrimination based upon handicap, the following actions will be taken:

- (a) Adoption of an official grievance procedure for applicants for employment and employees.
- (b) The Affirmative Action Office will be responsible for notifying all applicants for employment and employees of the existence and applicability of the grievance procedure as well as the time period within which an initial complaint must be submitted. The procedure will be made available in form(s) considerate of the needs of persons with disabilities.
- (c) The categories of people to whom the procedure applies will be indicated at the beginning of the procedure.
- (d) Agencies which hear discrimination cases will be mentioned at both the beginning of the procedure and in the section on appeals.
- (e) The Director of Affirmation Action/ Equal Employment Opportunity will be responsible for arranging appropriate accommodations to

guarantee equal participation by handicapped individuals in every phase of the grievance process. Such accommodations might include provision of interpreters for deaf persons, provision of taped cassettes of correspondence and summaries for blind persons, and assurance of a barrier free location for hearings.

E. Staged Plan for Program Accessibility

This section describes a staged plan for reaching program accessibility. This section treats each of the fixed-route modes and describes how and when accessibility modifications will be made. Auxiliary components of program accessibility, such as "connector service," are also treated here, in addition to a description of all required changes to facilities. The starting point for the staged plan is the existing M.B.T.A. system, plus construction or renovation projects already programmed or underway. In all cases, a description of required changes is given and a schedule is outlined, although precise dates are not always possible when interpreting into the future by more than a few years. Costs are given in some cases when data is available from other studies or sources. In some cases, a series of options are analyzed, but in other cases, there are no options because of the stringency of the 504 Regulations which dictate only one approach.

E.1 Fixed Route Bus Services

The 504 Regulations have two major criteria which apply to the M.B.T.A.'s fixed-route bus service:

- a) All vehicles purchased after July 2, 1979 must be wheelchair accessible.
- b) By July, 1982, all vehicles must be accessible to handicapped who can use steps.

- c) By July, 1989, 50% of all peak service must use wheelchair accessible vehicles. Also, wheelchair accessible vehicles must be used before other vehicles in the off-peak.

The M.B.T.A.'s existing bus fleet is described in Section D.1.

Schedule

Program accessibility for the fixed-route bus service will be achieved through the phased introduction of accessible vehicles as they are purchased new. All new bus type vehicles purchased in the future will be completely accessible, per Department of Transportation regulation. The M.B.T.A. has a nominal fleet replacement schedule of 80 to 100 vehicles per year. Although year-to-year replacements may vary because of funding, bidding, and delivery schedules, the replacement totals over a lengthy period of time should be at about this rate. Thus, the M.B.T.A. should have between 666 and 746 wheelchair accessible buses by 1989, more than enough to meet the program accessibility requirements.

The number of accessible vehicles needed to meet program accessibility requirements cannot be determined exactly. Given a peak requirement of about 900 vehicles, a minimum of 450 would be needed. Given a need for spares, breakdowns, etc., a total of 600 would be more comfortable. The attached Table E.1-1 shows how the percentage of fleet accessibility will increase in the

future. The 50% peak service requirement will be met around 1987-8, at least two years ahead of the 1989 deadline. Currently, the M.B.T.A. is expecting one order of five buses with lifts in late 1980 and another order of 21 in early 1981. Both of these orders are retrofits of existing buses.

The first order of five lift vehicles will be utilized for purposes of equipment verification, operator and mechanical training, consumer education, publicity, and possibly limited demonstration use on selected routes.

As was noted, bids on the 21 bus retrofit were accepted and awarded in September of 1980, and delivery will occur in early 1981. The first scheduling of these buses on routes is anticipated in the spring of 1981.

Routing and Scheduling Policy

During the period when the bus fleet is partially wheelchair accessible, the lift buses will be operated according to a set of policies developed in conjunction with the handicapped advisory group. The policies govern route selection and schedule frequency of lift bus operation. The policies are designed in a rigorous way to allow selection of priority routes, (see section on Route Selection Policy) yet hopefully are flexible enough to account for changes in the future.

Route Selection Policy

Routes are to be selected for lift bus operation in a manner to:

- Increase the likelihood of a handicapped person using the lifts.
- Coordinate as needed with other policies or procedures which may influence M.B.T.A. bus allocation strategies.

Principles of route selection are:

- A. Routes shall be selected which have high utilization. Utilization reflects both the total (existing) ridership on a route and the number of buses needed to operate the route. It is defined by total (daily) ridership divided by the number of bus trips made each day on the route. Utilization of 30 passenger/bus trip is considered high.
- B. Lift bus routes should connect with accessibility, which is defined as either an accessible rapid transit station or areas receiving interim service. Accessible stations today include: Harvard/Brattle, Ashmont and Braintree on the Red Line and Oak Grove on the Orange Line. In downtown, Park Street Station is also accessible to the Red Line.
- C. Routes selected should not be located entirely within the interim service area. Note that many bus routes will go partially through the interim service area, These routes are not excluded. Only those routes wholly within the interim service area will be excluded initially.

- D. Routes which are selected should serve major generators such as business and commercial concentrations, hospitals, etc.
- E. Routes which have high numbers of existing elderly and handicapped riders should get some priority. Unfortunately, this data is only available for a few routes, so this criteria cannot be universally applied.
- F. Express routes run from suburban areas directly to downtown. They primarily carry work trips and are often utilized, heavily, in part because they may only operate in the peak. Express buses which are primarily accessed by car (such as the Riverside buses) should not be priority routes, since the potential handicapped consumer who has a car would presumably prefer to drive all the way downtown. However, some express routes do run as local routes in the suburban areas and can be considered as priority if they meet other criteria.
- G. Routes which are located in relatively barrier-free areas, i.e., existing curb cuts, etc. shall be given priority.

Frequency of Service Policy

After a route is selected for lift buses, it is necessary to determine how many lift buses will operate on the route. Most M.B.T.A. routes will have several vehicles physically on the route at any given time.

Several options are:

- o Make every bus on the route accessible.
- o Make every bus in the off-peak accessible and keep the same frequency in the peak.
- o Schedule lift buses at arbitrary headways, such as 5, 15, 30 or 60 minutes.
- o Schedule lift buses on a route in accordance only with the expressed travel desires of individual handicapped riders.

After discussion in the Fixed Bus and Paratransit Task Force, it was decided by the consumers to recommend the following policy:

Lift buses should be scheduled on accessible routes at a 15-minute headway, insofar as is possible. Lift bus headways will not drop below 15 minutes, but may go above 15 minutes if the normal headway is higher than that.

The net effect of this policy is that lift buses will be spread out on more routes. The most equitable way is to extend lift bus service to as many people as possible.

Priority Routes

Based on the route policies above, a number of priority routes have been selected for each garage. These are listed in Table E.1-2, along with pertinent data, such as the (existing) headway, and the number of vehicles required to operate the route.

Designation of these routes as priority will allow future flexibility in picking actual routes as more lift buses are delivered.

Also shown on the table are the lift bus headways and required number of lift buses if operated under the recommended scheduling policy. This information will help to estimate how many routes can be made accessible with a given number of buses.

Conclusions on Routing and Scheduling Policies

- o Few routes meet even the three criteria of high utilization, accessible rapid transit connection, and being outside the interim service area.

- o Some examples are:

22 Ashmont - Dudley (via Talbot)

23 Ashmont - Dudley (via Washington)

304 Watertown - Downtown (Express)

77 Arlington - Harvard

96 Medford - Harvard

700 Burlington - Downtown

These routes seem to meet the greatest number of criteria, but there is substantial room for judgment on this issue.

- o Most of the routes can be operated with about 3-4 buses in the A.M. peak, under the recommended scheduling policy. A few routes require 7-8 buses.
- o Lynn, Eagle Street and Arborway garages have no routes which connect with accessible rapid transit stations.

- o To implement all of the priority routes given in Table E.1-2 would require 91-98 lift buses in the A.M. peak and 65-67 in the base (off-peak) period. These are on-road vehicle requirements, not including spares or interlining. Probably 150-200 lift vehicles need be owned before all priority bus routes could receive accessible service as shown in Table E.1-2. This could happen as early as 1983, although it depends on exact bus delivery dates.

Lift Operational Policy

Lifts on buses may be of use to handicapped in wheelchairs and others who have problems climbing steps. Thus, M.B.T.A. policy is that any person with a bona fide need can use the lift. If headroom or safety becomes a problem for semi-ambulatory persons, this policy can be changed at that time. It is not anticipated that problems will arise, however.

Operation of lifts will occur both at the curb and in the street. The operating environment in the M.B.T.A. region, e.g., heavy traffic, illegally parked autos, etc., creates a wide variety of conditions under which buses stop. Surveillance and modification of bus stops for accessibility is an admirable idea which the M.B.T.A. may possibly put in effect at a later date when lift bus operations have stabilized. Snow accumulation during winter will also contribute to the need for on-street lift operation.

Year	Lift Buses Purchased	Cumulative Total	Cumulative % Active Fleet	Cumulative % Peak Requirements	Cumulative % Program Accessibility ³
1980 ¹	5	5	.4%	.6%	.8%
1981 ²	21	26	2%	3%	4%
1981	80	106	9%	12%	18%
1982	80	186	16%	21%	31%
1983	80	266	23%	30%	44%
1984	80	346	30%	38%	58%
1985	80	426	37%	47%	71%
1986	80	506	44%	56%	84%
1987	80	586	51%	65%	98%
1988	80	666	58%	74%	100+%
1989	80	746	65%	83%	100+%
1990	80	826	72%	92%	100+%
1991	80	906	79%	100+	100+%
1992	80	986	86%	100+	100+%
1993	80	1066	93%	100+	100+%
1994	80	1146	100.0	100+	100+%

Active Fleet = about 1150

Peak Requirement = about 900

¹Expected delivery in Late 1980

²Bid award June, 1980; delivery early 1981

³Assumes 600 lift vehicles needed for program accessibility

Note: Nominal replacement schedule of 80 vehicles/year assumed. Exact numbers and timing depend on price and funds available and cannot be predicted exactly.

TABLE E-1-1 LIFT BUS SCHEDULE

CABOT	ROUTE	UTILIZATION	ACCESSIBLE CONNECTIONS		NORMAL HEADWAY		NORMAL VEHICLES		RECOMMENDED HEADWAY		ACCESSIBLE VEHICLES	
			RT	RIDE	A.M. Peak	Base	A.M. Peak	Base	A.M. Peak	Base	A.M. Peak	Base
1	Harvard - Dudley	34	Hvd	Entirely w/ln	6	9	11	7	15	18	4-5	3-4
22	Ashmont - Dudley. (via Talbot)	30	Ash	Connects	8	13	6	4	16	13	3	4
23	Ashmont - Dudley (via Wash.)	33	Ash	Connects	6	13	9	4	18	13	3	4
43	Egleston - Park and Tremont	28	Prk	Partial	9	12	7	5	18	12	3-4	5
<u>ALBANY</u>												
301	Brighton - Downtown(Exp.)	54	Wash	Partial	6		9		18		3	
302	Watertown - Copley(Exp.)	40	--	Partial	10		5		20		2-3	
304	Watertown - Downtown(Exp.)	30	Wash	Partial	7	15	15	4	14	15	7-8	4
<u>QUINCY</u>												
215	Quincy-Ashmont	--	Ash	Out	20	30	3	2	20	30	3	2
240	Crawford - Ashmont	20	Ash	Out	10	30	7	3	20	30	3-4	3
<u>EAGLE</u>												
110	Wonderland - Wellington	28	--	Out	18	20	6	3	18	20	6	3
120	Orient Heights - Maverick	40	--	Partial	15	30	2	1	15	30	2	1
<u>ARBORWAY</u>												
29	Mattapan - Egleston	35	--	Out	4/5	10	11	6	12/15	20	4	3
34	Dedham - Arborway	23	--	Out	4	15	15	7	16	15	4	7
595	Jamaica Plain Loop (mtnl-bus)		--	Out		30		1		30		1

TABLE E.1-2 PRIORITY ROUTES FOR LIGHT BUSES

	ROUTE	UTILIZATION	RT	ACCESSIBLE CONNECTIONS		NORMAL HEADWAY		NORMAL VEHICLES		RECOMMENDED HEADWAY		ACCESSIBLE VEHICLES	
				RIDE	Peak	Base	Peak	Base	Peak	Base	Peak	Base	
<u>BENNETT</u>													
77	Arlington - Harvard	30	Hvd	Partial	4	7	31	11	16	14	7-8	5-6	
528	Hanscom - Harvard	30	Hvd	Partial	30	60	4	2	30	60	4	2	
63	Cleveland Circle - Central	30	--	Within	20	30	3	2	20	30	3	2	
<u>FELLSWAY</u>													
96	Medford - Harvard	29	Hvd	Partial	8	35	10	6	16	35	5	6	
325	Elm Street - Haymarket(Exp.)	35	--	Out	13		3		13		3		
326	West Medford - Haymarket	40	--	Out	13		4		13		4		
<u>CHARLESTOWN</u>													
93	Sullivan - Downtown	27	--	Within	5/6	20	9	3	15/18	20	3	3	
109	Linden - Sullivan	30	--	Out	8	25	7	2	16	25	3-4	2	
590	Somerville Loop (mini)		--	Out		70		1		70		1	
700	Burlington - Park Sq.	30	Prk	Out	15	60	6	2	15	60	6	2	
701	Burlington - Downtown	49	Prk	Out	--	--	--	--	--	--	--	--	
<u>LYNN</u>													
426	Lynn - Boston	32	--	Out	8	60	8	1	16	60	4	1	
441	Lynn - Marblehead (via Paradise)	30	--	Out	30	60	2	1	30	60	2	1	

TABLE E.1-2 PRIORITY ROUTES FOR LIFT BUSES(CONT.)

Lift users will board and alight after other passengers. Drivers will give assistance per existing labor regulations. (See Section D.2) If wheelchair locations are filled, the potential wheelchair patron may have to wait. However, this is not likely to occur often.

E.2 Rapid Transit Lines

The M.B.T.A. rapid transit system includes the Red, Orange and Blue Rapid Transit Lines (RTL). This section will discuss how the lines will be made accessible to handicapped who cannot use steps. (A later section discusses the cost of making the RTLs accessible to those handicapped who can use steps.) Wheelchair accessibility requires two major activities: equipping stations with elevators (or ramps if appropriate) to allow wheelchair access, and reducing the platform-vehicle gap to prescribed standards. In the M.B.T.A.'s view, all rapid transit cars are now accessible to all handicapped and no modifications to the vehicles themselves are or will be needed.

Briefly summarized, the 504 Regulations requirements for rapid rail "program accessibility" are:

- o All stations must be accessible to handicapped people who can use steps and key stations be accessible to those in wheelchairs.
- o At least one car per train must be accessible to wheelchairs.

- o Key stations must be selected based on ridership and locational criteria.
- o All key stations should be accessible within 30 years (by the year 2009).
- o One-third of the key stations should be accessible within 12 years (by 1991). (This is D.O.T.'s suggested but not mandatory benchmark.)

Key Stations

Key stations have been selected in conjunction with the handicapped advisory group on all three lines as a function of ridership and activity at the stations. The stations correspond to the system as it will exist in the future, after completion of the Red Line Extension and Southwest Corridor projects. (The Blue Line Extension to Lynn is not assumed.) All high volume stations are designated as key, as well as many transfer, end-of-line, and major trip generator/collector stations.

The attached Figure E.2.1 shows the selected RTL key stations, in the future after new construction. Out of 53 RTL stations, there are 32 key stations. This is a very high figure of 60%, exceeding U.M.T.A.'s suggested 40% guideline by a wide margin.

Reference to Figure E.2.1 should show that the selected key stations provide wide geographic coverage and good distribution. All terminal stations and downtown transfer stations are included. All major bus transfer stations are included. All high volume

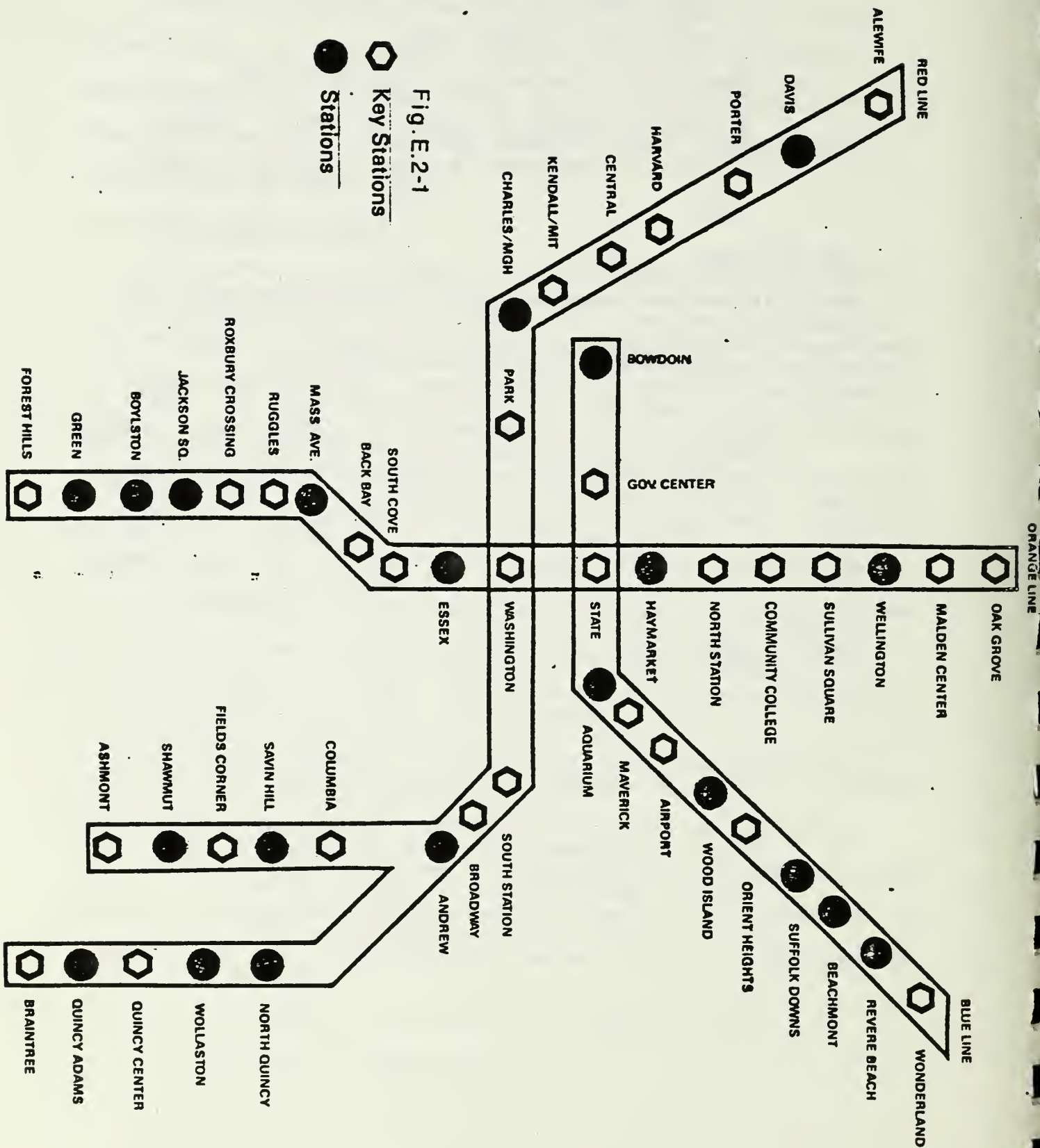


Fig. E.2-1

stations are included. All commuter rail transfer stations are included, as well as the Airport Station. All stations which serve major colleges are included (Harvard, Kendall, Columbia, and Community College). The key station concept precludes the selection of all stations, although some of the remaining stations do have attractive features. The high percentage, far in excess of federal guidelines, should give proof of the quality and wisdom of this selection.

Schedule and Benchmarks

The M.B.T.A. is fortunate in having a number of accessible key stations today and a fairly large construction and renovation program which will, from already funded programs, provide even more accessible stations in the immediate future. The extent of this is shown in Figure E.2.2.

Five key stations, or 16% of all key stations, are accessible today. Oak Grove, Ashmont and Braintree are completely accessible. Park Street is completely accessible from the Red Line to the street. The temporary Brattle Station is accessible from the rear, and will be replaced by the new accessible Harvard Station. Two additional key stations are partially accessible, but do not allow direct access to the street.

Full Access Today:

Oak Grove
Braintree
Ashmont
Harvard/Brattle (temporary)
Park (to Red Line only)

Partial Access Today:

State
Washington

Access by 1982/3: (New Construction)

Alewife (Red Line Ext.)
Davis (Red Line Ext.)+
Porter (Red Line Ext.)
Harvard (Red Line Ext.)
Quincy Adams (work in progress)+

Access by 1982/4: (Station Modernization)

Suffolk Downs+
State Street (Blue and Orange)
Washington Street (Orange and Red)
Essex Street (Inbound Only)+
Central Square
Kendall Square
South Station
Broadway
Columbia

Access by 1986/7:

South Cove (Southwest Ext.)
Back Bay (Southwest Ext.)
Mass. Ave. (Southwest Ext.)+
Ruggles (Southwest Ext.)
Roxbury Crossing (Southwest Ext.)
Jackson (Southwest Ext.)+
Boylston (Southwest Ext.)+
Green (Southwest Ext.)+
Forest Hills (Southwest Ext.)

+Not a key station

FIGURE E.2.2 ACCESSIBLE STATIONS-EITHER
EXISTING OR TO BE CONSTRUCTED OR MODERNIZED
AS PART OF EXISTING PROGRAM

Figure E.2.2 also shows the stations which will be accessible within the next 2-7 years as a result of programmed construction or modernization. This will result in a substantial number of accessible stations. After accounting for these plans, a total of 11 key stations remain which must be modified by 2009 in order to reach program accessibility. These are listed in Figure E.2.3.

More stations than just the key stations will be made accessible as a result of the new transit extensions. All 53 rapid transit line stations can be divided into six groups as follows:

	<u>Number</u>	<u>% Key</u>	<u>% TOTAL</u>
1. Key Stations	32	100%	60%
a. Programmed for accessibility	21	66%	40%
b. Not yet programmed for accessibility	11	34%	21%
2. Non-Key Stations	21	---	40%
a. Programmed for accessibility	7½	---	14%
b. Not programmed for accessibility	13½	---	25%

The total of 53 stations and 32 key stations reflects a double counting of Washington and State since each serves two separate rapid transit lines. The one-half station shown in the chart is Essex, which will be made accessible on the inbound side only. Lastly, the 21 key stations shown as programmed for accessibility includes the five stations now accessible.

<u>RED LINE</u>	<u>AVERAGE DAILY BOARDINGS</u>
Quincy Center	8,000
Fields Corner	4,000
<u>BLUE LINE</u>	
Government Center	10,000 (includes Green Line)
Maverick	5,000
Airport	1,800
Orient Heights	3,400
Wonderland	2,700
<u>ORANGE LINE</u>	
Malden Center	2,600
Sullivan Square	7,000
Community College	2,000
North Station	4,300

Note: These stations must be accessible by 2009.

FIGURE E.2-3 KEY STATIONS NOT YET
PROGRAMMED FOR ACCESSIBILITY

U.M.T.A. desires that "reasonable progress" be made in having key stations accessible. A specific benchmark of 33% key stations accessible by 1991 is suggested in the Regulations. The MBTA will meet this benchmark easily through the newly constructed accessible key stations. Figure E.2.4 shows how the percent of key stations accessibility will grow in the future. The MBTA will surpass the 33% benchmark whenever the Southwest Corridor is opened, which should be well before 1991.

Prioritization of Remaining Key Stations

There are 11 key stations which are not yet programmed for accessibility but will be made accessible as part of future construction projects. These are shown in Figure E.2.3. The date for completion of all key stations is 2009, which makes it difficult to predict exactly when the modification of these additional 11 stations might take place. No doubt there is a greater likelihood that accessibility modifications could be incorporated most easily within station modernization or rebuilding programs. However, these depend on station conditions and flow of federal funding, which cannot be predicted.

For example, many Red Line stations are in the design stage for a substantial modernization program, even though the actual construction funds do not exist. For many of these Red Line stations, which include 6 key stations, accessibility by elevators/ramps is being incorporated into the designs. (Note there are also plans for elevators at Washington in both the

Orange and Red Lines modernization programs.) This document assumes the successful completion of all of the currently programmed station modernization.

In the light of these uncertainties, it is difficult to assign a definite schedule or priority ranking to the 17 key stations which are not new construction. In lieu of this, a general policy of key station modification priority has been developed by the MBTA. These priorities are:

- o Downtown transfer stations (Washington, State and Government Center) should get top priority.
- o Key stations near handicapped trip generators or attractors should get high priority.
- o Key stations which constitute bus transfer opportunities should get high priority.
- o Key stations for which there is a nearby residential constituency of handicapped persons should get high priority.

No allocation of key stations according to these priorities has been made. Because of the lengthy time frames involved, flexibility in carrying out these modifications should be allowed so as to react to events in future years.

Costs

Total costs of achieving program accessibility in the rapid transit system can be broken into two parts: Limited accessibility and full accessibility. Each is discussed below.

Limited accessibility, is a term for that which makes the

rapid transit lines accessible by handicapped persons who can use steps. This includes all non-structural modification such as stair nosing overhang, reserved H.P. parking spots, handrail improvements, etc. The 504 Regulations state that this limited accessibility should be implemented at all stations by July, 1982. The amount of modifications required to achieve limited accessibility vary from station to station depending upon existing conditions. It also depends upon what architectural alterations are considered necessary to allow ambulatory handicapped persons access to stations and vehicles.

The available information on limited accessibility for the M.B.T.A. comes in part from the Section 321(a) Study. (The reader is referred to the study for a complete discussion.) The 321(a) Study resulted in the costs shown in Figure E.2.5 for limited accessibility. The M.B.T.A. is willing to accept, on a preliminary basis, the station costs and improvements from the 321(a) Study, pending a more detailed architectural design. (This was a costing study only, and did not result in architectural plans or drawings.) The M.B.T.A.'s position is that all rapid transit vehicles are now completely accessible.

Track alignment to reduce the gap problem is sometimes considered a component of limited accessibility. However, the M.B.T.A. feels that track alignment is a structural modification and benefits the non-ambulatory. Thus, track alignment costs are included in full accessibility costs, not the limited

accessibility costs. The step into a vehicle is far less imposing than that encountered in a standard staircase.

Full accessibility costs are given in Figure E.2-6 for only those 17 key stations needing accessibility beyond the 13 already existing or being constructed. These costs also arise from the 321(a) Study. Again, the M.B.T.A. is willing to accept these figures preliminarily, pending full engineering design.

In summary, cost data from the 321(a) Study show that about \$2,575,000 is needed to achieve limited accessibility, plus about \$24,026,000 to modify (including track realignment) an additional 17 stations for full accessibility.

Connector Service

Accessible and inaccessible rapid rail stations must be linked by accessible service. This service may be provided by regular bus routes, special bus routes, paratransit or any other accessible service which will transport a handicapped person from an inaccessible rapid rail station to the nearest accessible station in the person's direction of travel (or vice-versa). Generally, but not always, the connector service should not require more than one additional transfer in order to reach a destination.

After program accessibility has been reached, there will only be 15 inaccessible stations. All except one of these stations lie on a bus route today, as shown in Figure E.2.7.

Lift buses will, therefore, provide the connector service. The bus fleet should be completely accessible around 1990 or 1995 at the latest, substantially before the rapid rail program accessibility target date of 2009. There may be one or two instances where a bus route may require diversion or a peak only service may have to be extended, but these are the unusual exceptions.

Vehicle-Platform Gap Standards

The M.B.T.A. has a new policy covering the platform-vehicle gap. All design standards manuals will be changed to reflect this. All corrections made to track alignments in old stations will achieve these gap limitations:

Horizontal: A standard of 3 inches between platform and car. Variances of plus 1 inch or minus 2 inches are acceptable, giving a range of 1 to 4 inches, overall.

Vertical: A standard of 1.5 inches, with allowance of plus .5 inches or minus 1.5, yielding a range of 0 to 2 inches vehicle above platform.

	<u>RED LINE</u>	<u>KEY</u>	<u>COST OF ACCESSIBILITY</u>		<u>AVG. DAILY BOARDINGS</u>	<u>COMMENTS</u>
			<u>LIMITED</u>	<u>FULL</u>		
1.	Braintree	key	-----	-----	-----	Accessible now
2.	Quincy Adams	---	-----	-----	-----	Accessible by 1982
3.	Quincy Center	key	\$ 105,000	\$ 493,000	8,275	
4.	Wollaston	---	85,000		3,201	
5.	North Quincy	---	107,000		4,059	
6.	Ashmont	key	65,000	-0-	9.849	Accessible now
7.	Shawmut	---	45,000		1,154	
8.	Fields Corner	key	116,000	818,000	4,455	
9.	Savin Hill	---	80,000		1,596	
10.	Columbia	key	90,000	1,907,000	3,510	
11.	Andrew	---	55,000		4,774	
12.	Broadway	key	50,000	1,030,000	3,662	
13.	South Station	key	105,000	1,420,000	9,810	
14.	Washington	key	40,000	2,163,000	29,298	
15.	Park	key	85,000		35,537	Accessible now
16.	Charles	---	159,000		6,437	
17.	Kendall	key	94,000	2,326,000	4,890	
18.	Central	key	112,000	958,000	7,842	
TOTAL		11	\$1,393,000	\$11,115,000	\$138,349	

Note: Full accessibility cost is exclusive of limited access costs, therefore, the total of both columns is the cost to be incurred.

FIGURE E.2-5 COST OF RTL PROGRAM ACCESSIBILITY

		<u>COST OF ACCESSIBILITY</u>		<u>AVG. DAILY</u>	<u>COMMENTS</u>
<u>ORANGE LINE</u>	<u>KEY</u>	<u>LIMITED</u>	<u>FULL</u>	<u>BOARDINGS</u>	
23. Oak Grove	key	\$ 76,000		2,274	Accessible now
24. Malden	key		\$ 853,000	2,689	
25. Wellington	---	126,000		5,519	
26. Sullivan	key	36,000	701,000	6,834	
27. Comm. College	key	38,000	1,608,000	1,998	
28. North Station	key	34,000	1,163,000	4,387	
29. Haymarket	---	62,000		5,608	
30. State	key	32,000	645,000	13,280	Partially Accessi- ble now
31. Essex	---	48,000		5,710	
14. Washington	key	28,000	886,000	16,697	
TOTAL		\$498,000	\$5,856,000	64,996	

FIGURE E.2-5 (Cont.) COST OF RTL PROGRAM ACCESSIBILITY

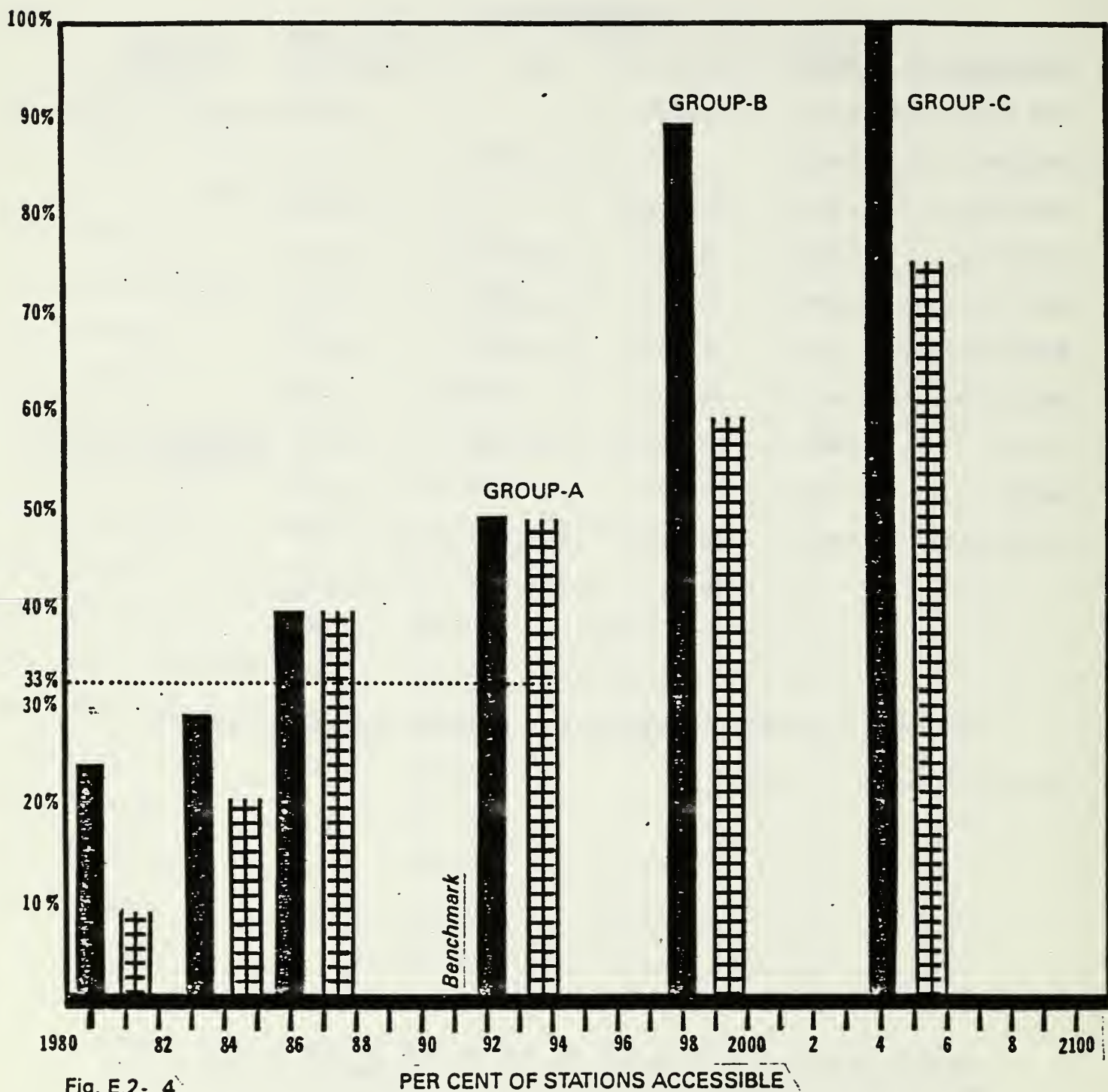




Fig. E.2- 4

 **KEY STATIONS**
 **ALL STATIONS**

Note: Station Mod. Not Included

<u>BLUE LINE</u>	<u>KEY</u>	<u>COST OF ACCESSIBILITY</u>		<u>BOARDINGS</u>	<u>COMMENTS</u>
		<u>LIMITED</u>	<u>FULL</u>		
41. Wonderland	key	\$ 63,000	987,000	2,731	
42. Revere	---	65,000	-----	1,322	
43. Beachmont	---	83,000	-----	1,505	
44. Suffolk Downs	---	15,000	-----	425	Accessible by 1982
45. Orient Heights	key	43,000	\$1,387,000	3,399	
46. Wood Island	---	90,000	-----	1,047	
47. Airport	key	80,000	919,000	1,870	
48. Maverick	key	54,000	441,000	5,038	
49. Aquarium	---	46,000	-----	1,947	
30. State	key	37,000	995,000	6,467	Partially Accessible Now
50. Government Center	key	54,000	976,000	4,469	
51. Bowdoin	---	54,000	-----	2,164	
TOTAL		\$684,000	\$5,705,000	32,384	

FIGURE E.2-5 (CONT.) COST OF RTL
PROGRAM ACCESSIBILITY

		<u>COST</u>		
		<u>LIMITED ACCESSIBILITY</u>	<u>FULL ACCESSIBILITY</u>	
Blue Line		\$ 684,000	\$ 5,705,000	
Red Line		1,393,000	11,115,000	
Orange Line		498,000	5,856,000	
TOTAL		\$2,575,000	\$22,676,000	
Track Alignment			1,350,000	
TOTAL		\$2,575,000	\$24,026,000	
		\$26,601,000		

Source: 321(a) Study: 1979 dollars only.

FIGURE E.2-6 TOTAL ESTIMATED COSTS OF ACCESSIBILITY FOR RTL'S

	STATION	LINE	AVG. DAILY VOLUME	BUS ROUTES SERVED
1.	Wellington	Orange	5519	108,106
2.	Haymarket	Orange	5608	2
3.	Essex	Orange	5710	11,49
4.	Revere Beach	Blue	1322	117,110
5.	Beachmont	Blue	1505	119
6.	Wood Island	Blue	1047	120
7.	Aquarium	Blue	1947	6
8.	Bowdoin	Blue	2164	2
9.	Shawmut	Red	1154	18
10.	Savin Hill	Red	1596	18,13
11.	North Quincy	Red	4059	210,211
12.	Wollaston	Red	3201	210,217,211
13.	Andrew	Red	4774	18,16
14.	Charles	Red	6437	700

Figure E.2-7 INACCESSIBLE STATIONS
AND POTENTIAL CONNECTOR BUS ROUTES

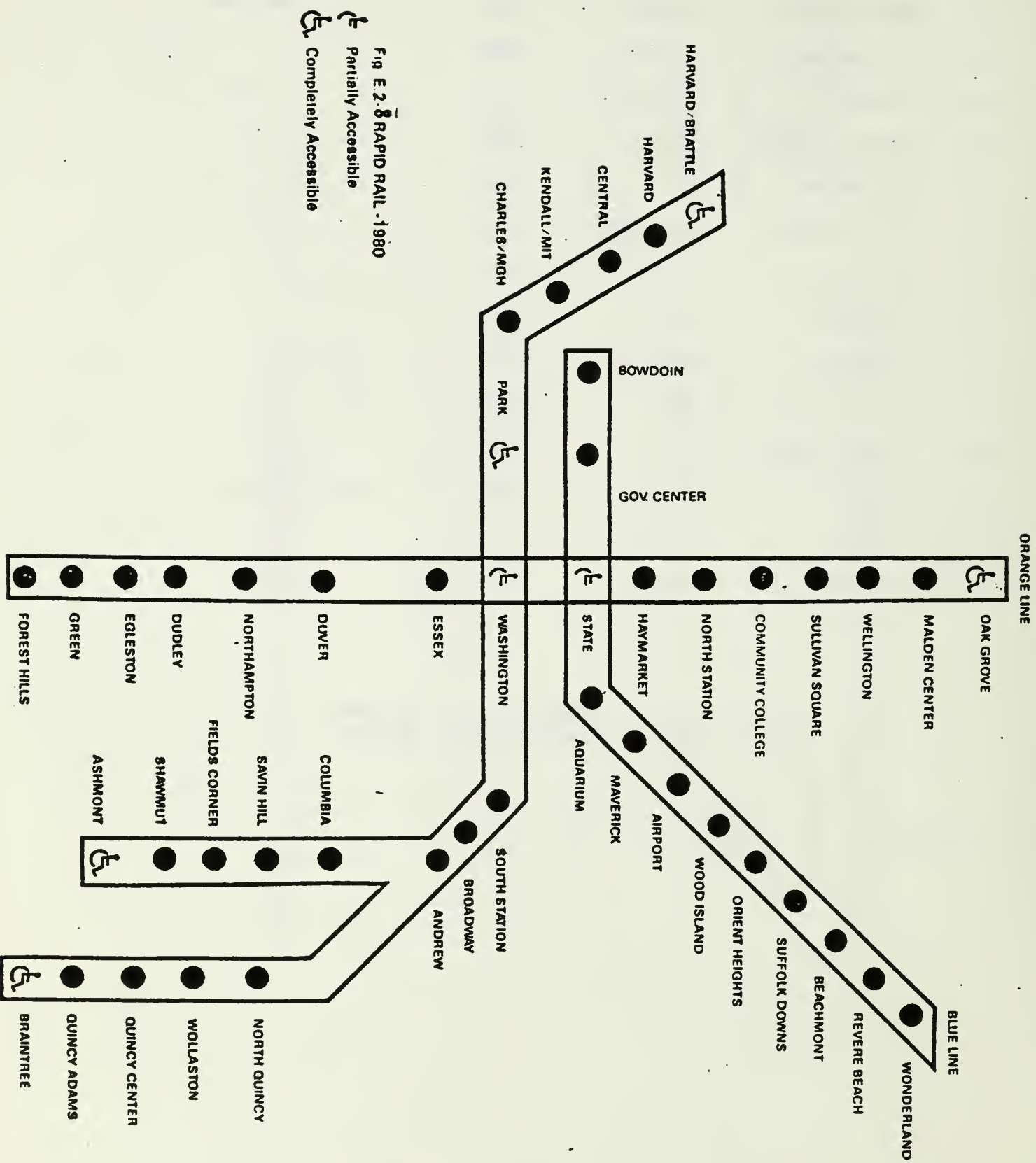


Fig E.2-8 RAPID RAIL - 1980

Partially Accessible

Completely Accessible

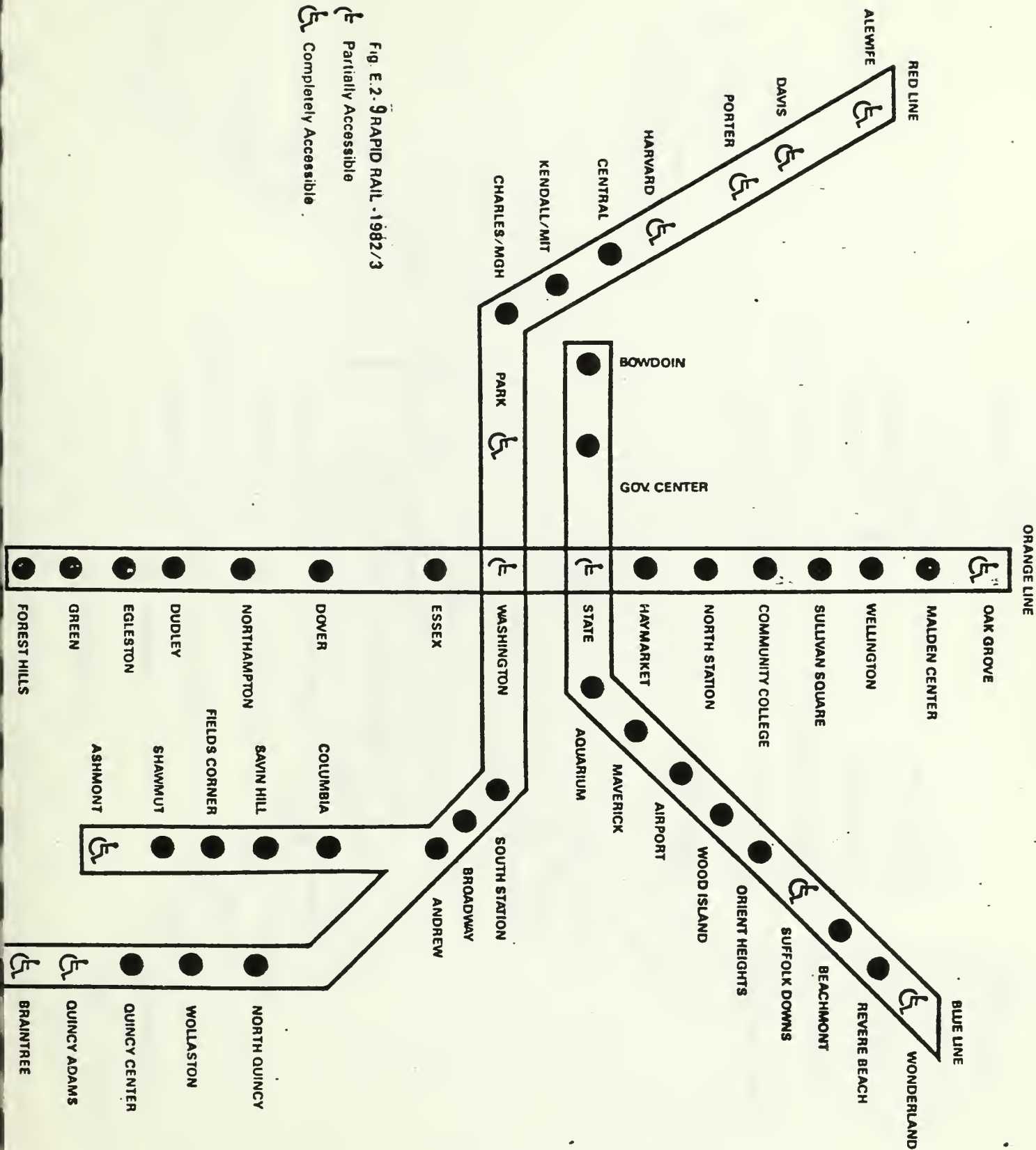




Fig. E.2.9 RAPID RAIL - 1982/3

Partially Accessible

Completely Accessible

Fig. E.210 RAPID RAIL - 1986/7

 Partially Accessible
 Completely Accessible

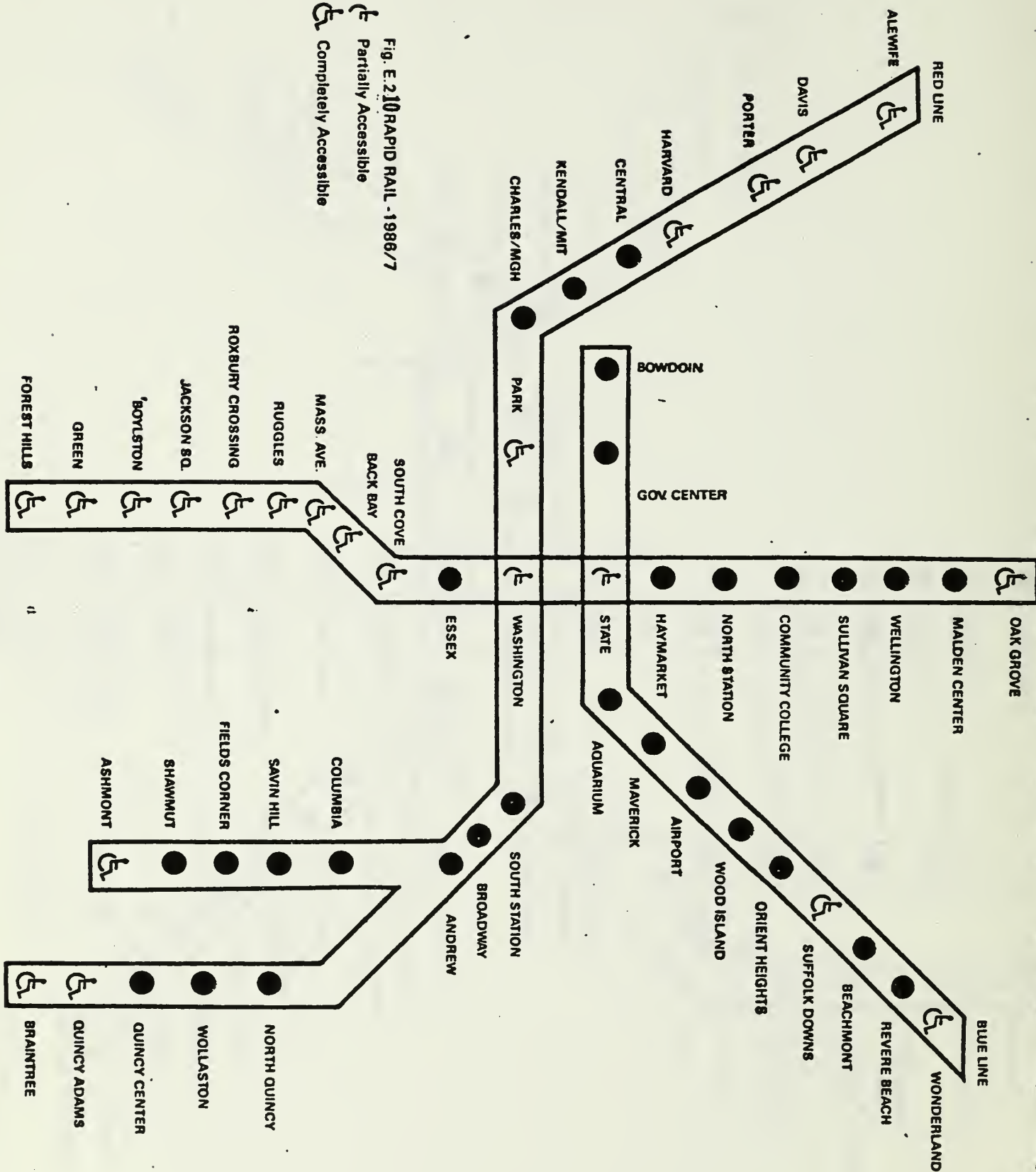


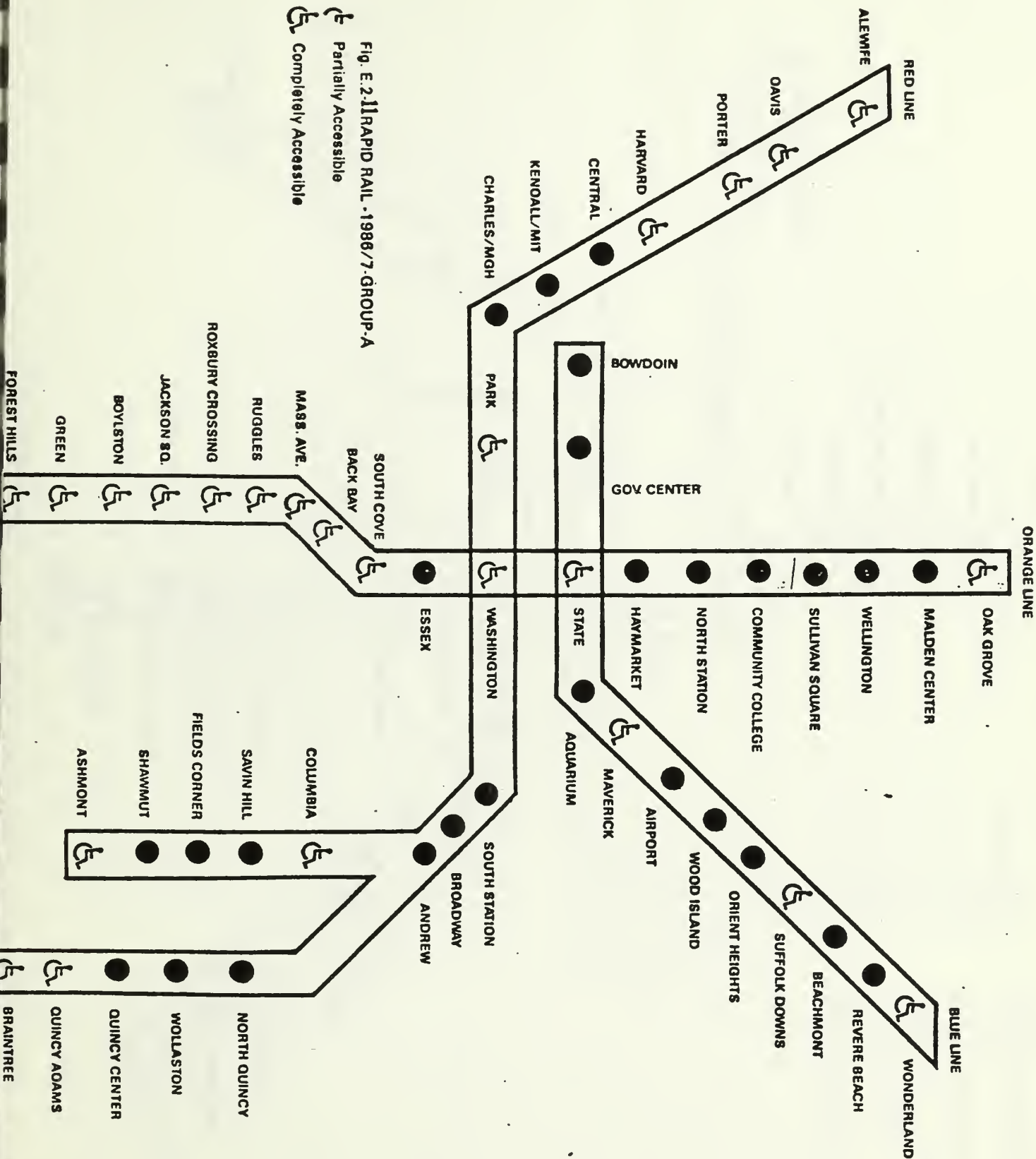


Fig. E-211 RAPID RAIL - 1986/7 - GROUP-A

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 Completely Accessible



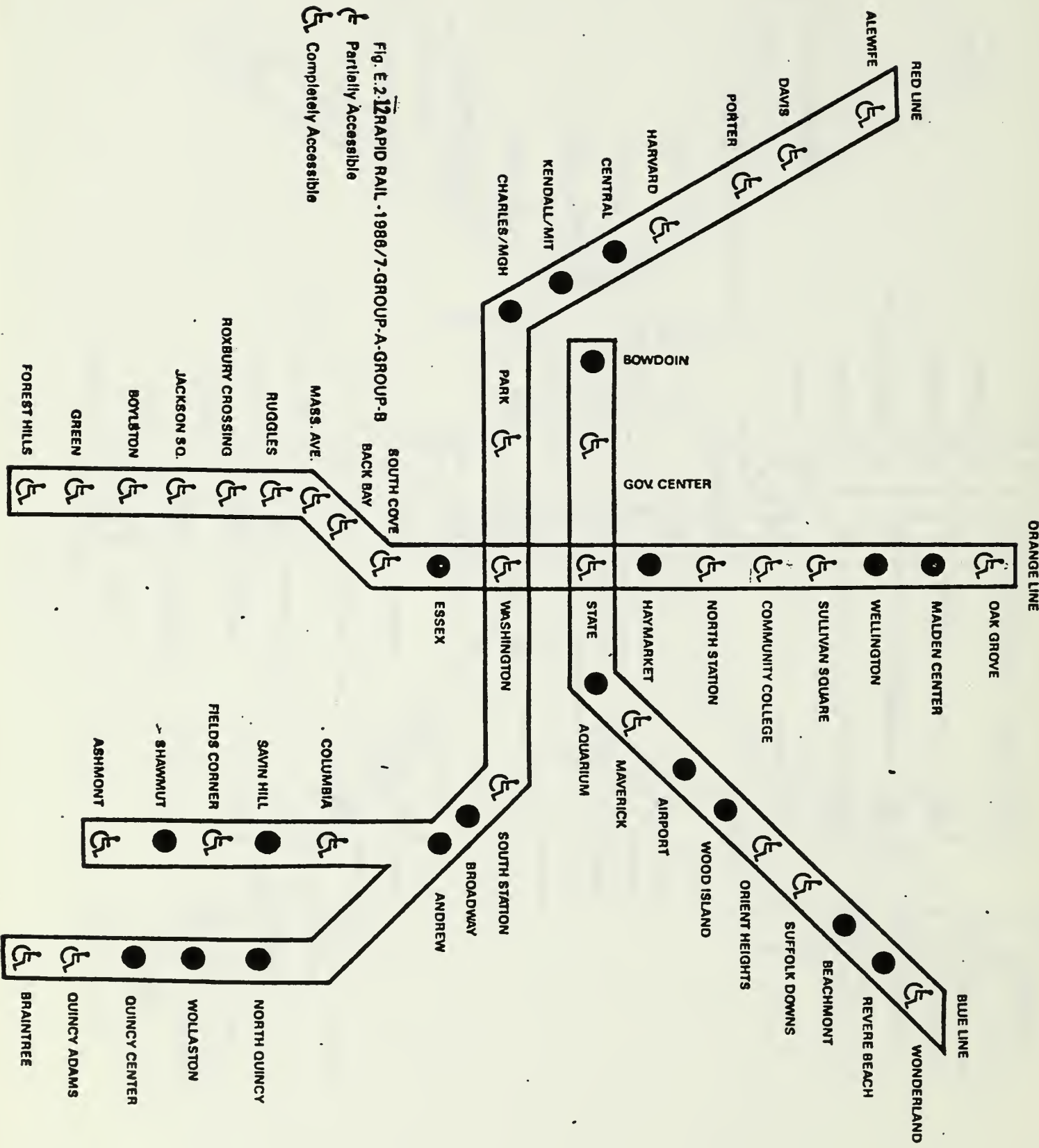


Fig. E.2. RAPID RAIL - 1988/7 - GROUP-A - GROUP-B

Partially Accessible

Completely Accessible

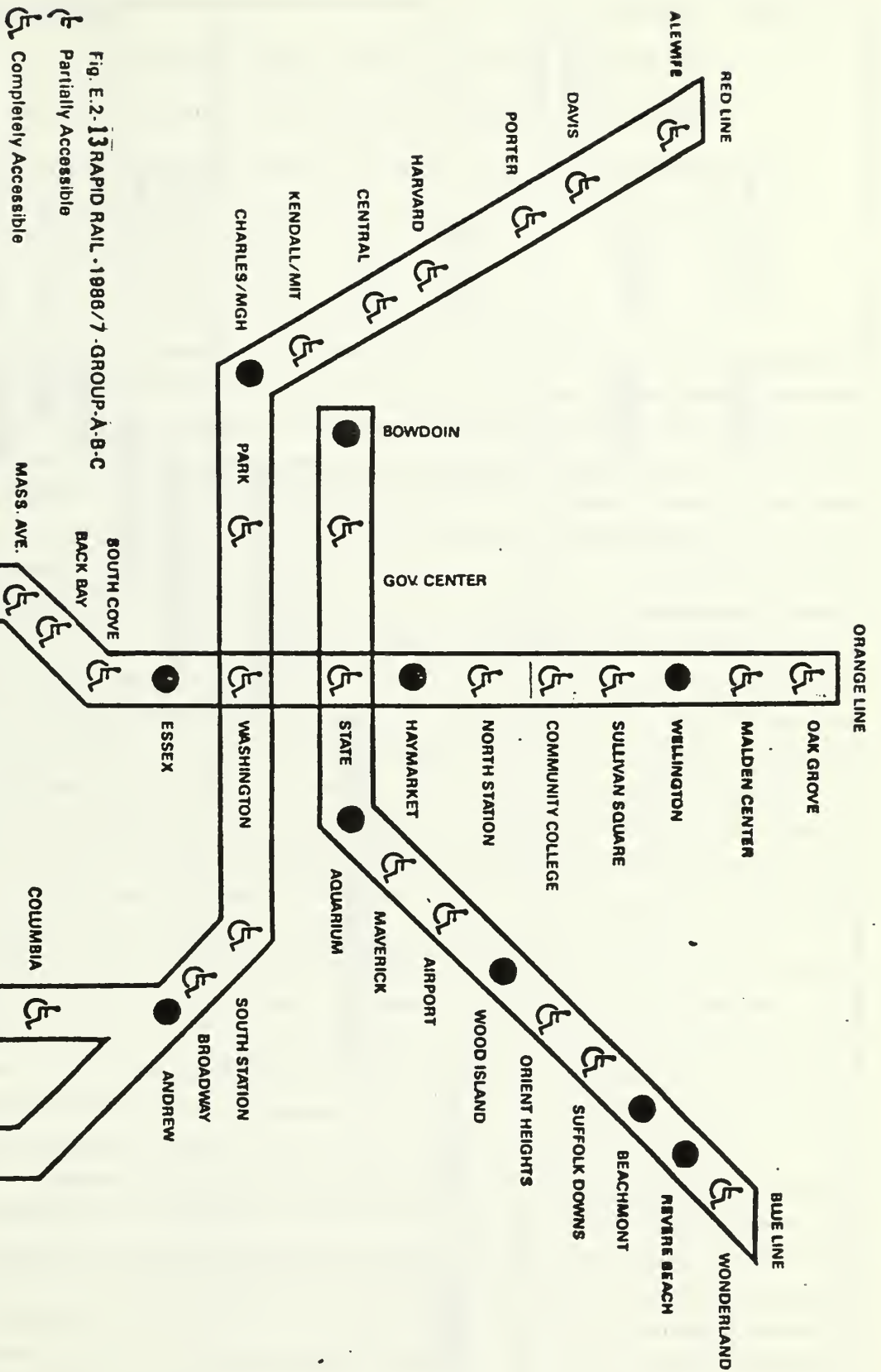
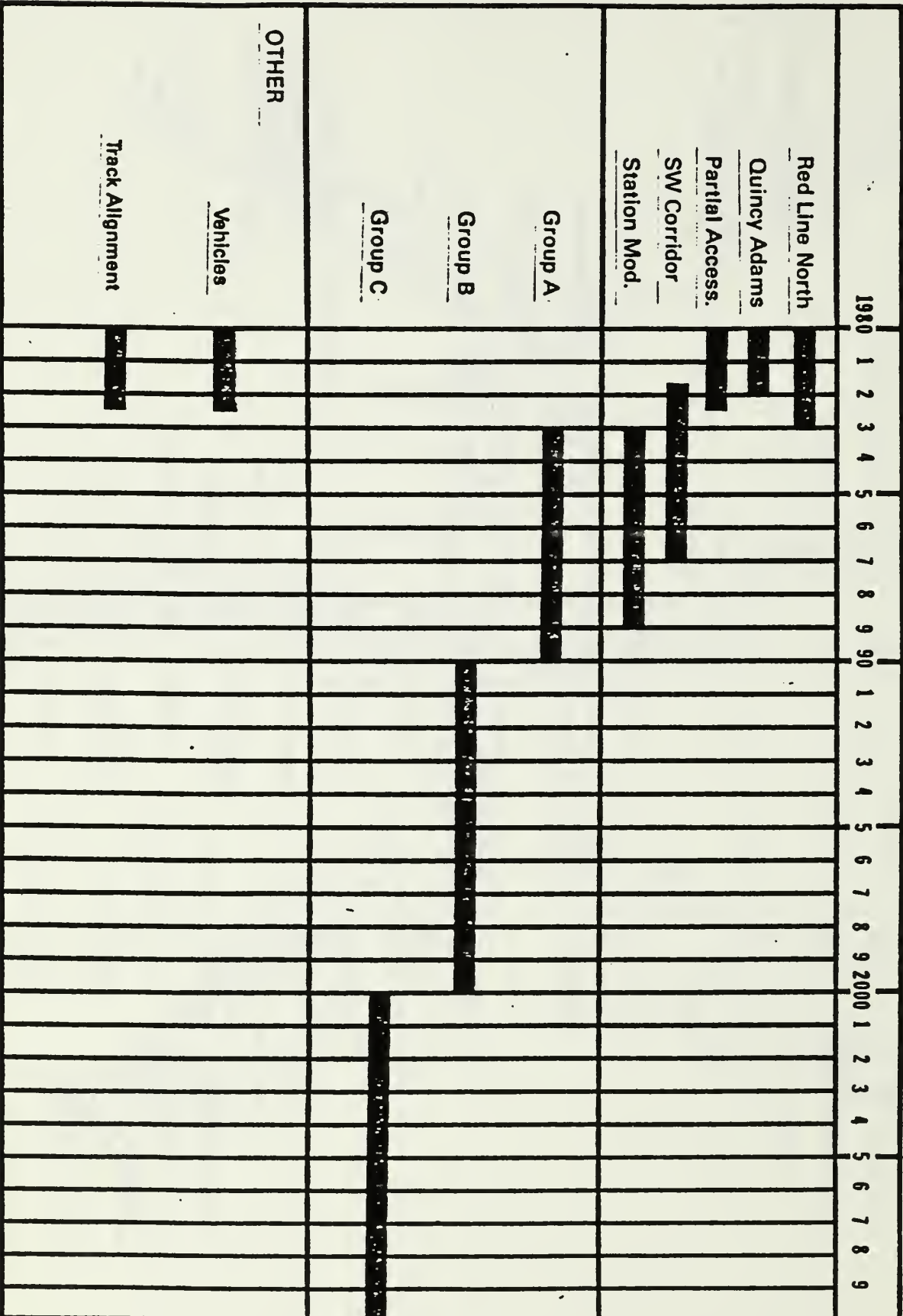


Fig. E.2-13 RAPID RAIL - 1986/7 - GROUP A-B-C

Fig. E.2-14 PROGRAM ACCESSIBILITY PLAN
Option Equally spaced Mode Rapid Rail Date 4/10/80



E.3 LIGHT RAIL SYSTEM

The M.B.T.A.'s extensive light rail system includes four separate lines which run into the central subway (the Green Line) and another grade-separated line known as the Mattapan High Speed Line. Most light rail lines operate in different environments:

- o The Highland Branch (Riverside) is totally grade separated.
- o The Arborway Branch is in a median strip for about half its length (to Brigham Circle), and runs in the middle of the street thereafter (to Arborway).
- o Exclusive at grade right-of-way, except for one street crossing.
- o The Cleveland Circle Branch is located on an instreet median.
- o The Boston College Branch is also located on an instreet median.
- o Finally, the viaduct to Lechmere, which extends from the central subway, contains two elevated stations and one prepaid surface station.

The vehicle fleet consists of very old PCC cars and new Boeing LRVs. The vehicle fleet reliability, while improving, has been the source of operational problems in the past.

Most PCC cars are in need of substantial rebuilding or replacement. The Boeing cars were somewhat deficient as built, and their long-range reliability is unknown. The M.B.T.A. does not now have enough vehicles to operate an adequate amount of light rail service.

The U.S. Department of Transportation 504 Regulations place some stringent requirements upon any light rail system. They state:

- o The entire system must be accessible to handicapped who can use steps by July, 1982.
- o All key light rail stations must be accessible to handicapped who cannot use steps within 20 years (1999).
- o At least one-half of the peak light rail service must be wheelchair accessible within 20 years (1999). This might require that 70% of all vehicles be wheelchair accessible.
- o New light rail purchases after January 1, 1983 shall be wheelchair accessible.

This section discusses the following issues:

- o Selection of key stations.
- o Three different alternatives for making the vehicle or platform/vehicle interface accessible to a wheelchair. These are:
 1. Lifts on vehicles.
 2. Combination of lifts and mini-platforms.
 3. Complete high platform conversion.

The general thesis of this section is that none of the three alternatives are viable. All of them have serious operational, construction, safety and/or equipment drawbacks when considering the existing conditions of the Green Line. All of them have very substantial cost implications. None of these issues will be resolved until the Green Line is substantially rebuilt. As a result of the arguments adduced herein, a temporary waiver request for all of the M.B.T.A.'s light rail facilities is recommended. The waiver request itself and the compensating alternate service are described in detail in sections F and G of this plan.

E.3.1 LIGHT RAIL KEY STATIONS

Selection of key stations is based on the following general criteria:

- o Transfer points.
- o End stations.
- o Major activity centers or generators.

Stations are defined as prepaid boarding areas, and include all parts of the Green Line extending from Kenmore to Lechmere on the central subway, and also Prudential and Symphony on the Arborway Line. All surface stops on the four surface lines, and on the Mattapan Line, have not been considered as stations, and no designations of these stops as "key" or "non-key" have been made.

The following stations have been proposed as key stations:

1. Lechmere
2. North Station
3. Government Center
4. Park
5. Copley
6. Kenmore
7. Symphony

This set includes rapid transit transfer capabilities at Park, Government Center and North Station; commuter railroad transfers at North Station, bus transfer at Lechmere, Copley, and Kenmore and many of the downtown activity centers. The seven proposed key stations constitute 54% of the 13 light rail stations, greater than the 40% U.M.T.A. guideline.

The estimated cost of station accessibility is:

<u>Station</u>	<u>Cost (Full Accessibility)</u>
Lechmere	\$ 33,200
Copley	496,300
North Station	456,585
Kenmore	575,557
Government Center	287,908
Park	274,328
Symphony	323,061
TOTAL	\$2,446,939 (1979 \$ only)

Source: 321(b) Study

Note that these figures only provide wheelchair access to the station and do not include the cost of access to the vehicle (for a wheelchair), nor do they include the cost of high platform

construction. They are estimates from the Federal 321(b) Study, and may, or may not, be appropriate.

There are, today, no station modernization plans or other construction involving Green Line station access, such as those on the rapid transit lines. Thus, a tentative schedule might call for one station being modified every few years over the 20 year period. There are no specific guidelines or benchmarks called for in the Federal regulations, other than reasonable progress. However, station access to wheelchairs is of limited value unless vehicle access to wheelchairs is also achieved. Until such time as the vehicle access issue is resolved, it would be premature to speculate about an exact schedule of station modifications solely for wheelchair accessibility.

E.3.2 OPTION 1: VEHICLE LIFTS

Wheelchair access to a light rail vehicle has been conceptualized through the addition of a lift to the vehicle, in a manner analogous to that employed on a bus. The most common type of lift usually considered is a passive type which is formed from the steps in one of the vehicles' stepwells, two if the vehicle is double-ended.

The M.B.T.A.'s light rail fleet today consists of PCC cars and Boeing LRVs. Neither vehicle was designed with a lift in mind. Both types of cars may eventually be replaced with other LRVs, although the exact date of replacement is difficult to gauge, and it may take many years. The Boeing cars, while new, have a poor performance history and their life span is difficult to estimate. The PCCs now intended for rebuilding may last up

to another 20 years, however, they constitute about 30% of the PCC fleet (50 of 165).

No lift has yet been designed or demonstrated on a functioning light rail system.¹ While there are some design studies underway, the actual development of a practical and workable lift is not assured. The City of San Diego is currently purchasing 14 new Duwag LRVs with wheelchair (Transi-Lift) lifts. The success of its demonstration is not assured; further, its vehicles and operations are so different from the M.B.T.A. as to make the demonstration results non-transferable.

The existing M.B.T.A. light rail fleet has not been designed for a stairwell passive lift. There are machinery, wiring, and structural members under the steps and no detailed engineering studies have been done to determine whether lift installation is feasible. Preliminary studies have shown the existence of a large number of problem areas which make the entire concept doubtful: (1) The presence of a drum switch in the right front doorwell of a PCC car; (2) An air duct in the PCC car's left side doorwell; (3) Having insufficient space in which the couplers can swing must also be accounted for; (4) In the Boeing cars the cable troughs are in the stairwells.

¹The Authority's Office for Special Needs continually monitors development of accessibility programs.

What is apparent is that a lift retrofit program for the PCC and Boeing cars would be expensive, would require a great deal of development, might not have a high probability of success, and would tend to complicate cars which are already complex and difficult to keep maintained.

Thus, the M.B.T.A. should assume that if the concept of a light rail lift is to be pursued, it should only be in the context of newly purchased LRVs. This is because the successful development of a lift LRV will require matching of the vehicle to the lift and attendant modification of the vehicle design. Since neither the PCC car nor the Boeing car is produced anymore, it seems unreasonable to expect redesign of the existing vehicle fleets for the purpose of inserting a lift. Whether a lift-equipped LRV does become available in the future from another manufacturer is, of course, beyond the purview of the M.B.T.A. and will depend on Federal Government policy, the manufacturers, and the technology of the vehicles.

Lift Operation

Equipping current LRVs with lifts implies numerous operational problems. Among these concerns are disabling the vehicle, left-hand loading, crush conditions, and surface loading dwell time impacts. All of these factors, which will be discussed below, contribute to the continuing questionability of this approach.

Disabled Vehicles

LRVs are different from buses in several respects. One difference is that they operate on tracks in a tunnel at low headways. If a vehicle becomes disabled, there is a severe impact on service throughout the entire system. The vehicle cannot be pulled to the side to allow other vehicles to pass, as can a bus. Any lift malfunction during use will presumably disable the vehicle until the malfunction is corrected. The doors will not shut if the lift is jammed during its operation and the vehicle, therefore, cannot move. If the lift platform is jammed or broken, in its extended position, it is possible that it may be prevented from passing through the tunnels at all. Even if the lift can be repaired in the field, the time to get a mechanic to the station would produce unacceptable delays in service. In general, any mechanical device which extends from the vehicle is not a good idea, be this a lift, gap closer, signal semaphore or other device, because it inhibits passage of the vehicle through the tunnels if the device becomes jammed in the extended position. It is standard railroad and transit practice never to have devices which extend from the vehicle.

Left-hand Loading

The situation is further complicated by the existence of left-hand loading platforms at several Green Line stations. These include Park and Government Center, the two Green Line stations highest in passenger volumes. To add a left-hand lift to the LRV will increase the amount of underfloor space required,

the need for redesign of the vehicle, and the machinery needed for the lifts. Also, the driver would need a clear line of sight to the lift to avoid safety problems. There is no way that a lift could be operated in crowded conditions by remote control. If a lift were in the left-hand door of a Boeing car, the driver would need to leave his seat and go to the door in question. (This is standard procedure on GM buses which have rear door lifts.) This adds to the dwell time considerably, particularly under crush conditions.

Crush Conditions

The crush conditions in the Green Line raise additional concerns. Crush conditions typically occur in all peak periods and some off-peak periods on many parts of the Green Line. They are characterized by extreme crowding in all parts of the car, very slow vehicle boarding/alighting, excessive dwell times and very slow crowd movement. It is possible that up to 50% of all passengers traveling on the Green Line experience crush conditions. They are caused by the shortage of available vehicles and by the low capacity of the line's design. There is little likelihood that the crush conditions can be alleviated to any great extent in the near future.

Crush conditions constitute a barrier in and of themselves. Any attempt to create vehicle hardware accessibility without considering these very real operating conditions will not be

useful. Any accessibility solution which conflicts with reducing crush conditions or which is incompatible with crush conditions should be eliminated accordingly. Part of the problem with lifts is that they cannot be operated at all unless a clear area is created. People must be removed not only from the doorwell, but also the immediately adjacent floor area. During crush, this could involve getting up to 20 people to step off the vehicle and wait while the lift is operated. It is unlikely that passengers on the vehicle will be willing to exit then re-enter after a wheelchair patron is situated. It should be noted that people on the Green Line today tend to congregate near doors during peak periods, even when space is available near the rear of the vehicle, to avoid getting trapped in the crowd. Thus, lift operation becomes highly improbable during crush conditions.

The interaction of lifts and crush conditions would tend to create the following problems:

- 1) Lift use itself would be problematical.
- 2) Were it possible, dwell time would be lengthened excessively.
- 3) Any wheelchairs inside the vehicle would have no mobility at all.

Surface Operation

Surface operations would present severe safety problems if the lift were to be operated at narrow median stops or in the middle of the street. This includes both the Commonwealth Avenue and Beacon Street lines and half of the Arborway.

On the Arborway Line, between Brigham Circle and Arborway, the LRVs run directly in the street. Lift cycling would take time and would encroach into vehicle traffic. This would be dangerous to wheelchair users, people on the street, automobiles, etc. The M.B.T.A. cannot accept situations which create danger for the passengers. Also, there would be danger of damage to the lift. A similar situation occurs on parts of the Watertown Line, if LRV service were ever to be resumed there. On the Beacon Street and Commonwealth Avenue lines, 80-90% of the median right-of-way platforms are quite narrow. A wheelchair could get on the platform but likely would not be able to board the lift platform from a position perpendicular to the vehicle. This would imply either: (a) Design of a lift boardable from the side, or at an angle, and without raised edges, or (b) Widening of the platforms, with subsequent narrowing of the traffic lanes. Desirable as this last option is, for other reasons, its implementation along lengthy stretches of already congested roadway seems quixotic at best.

Figure E.3-1 shows a schematic of several available lifts extending from a Boeing LRV to a typical 5-foot wide platform. It should be obvious that there is not enough space to board from the front of the lift.

Dwell Time Impacts

It should be obvious that provision of a lift on an LRV would increase dwell time substantially. Any device, whether related to the handicapped or not, which increases dwell time whenever it is operated, also reduces the line capacity. This

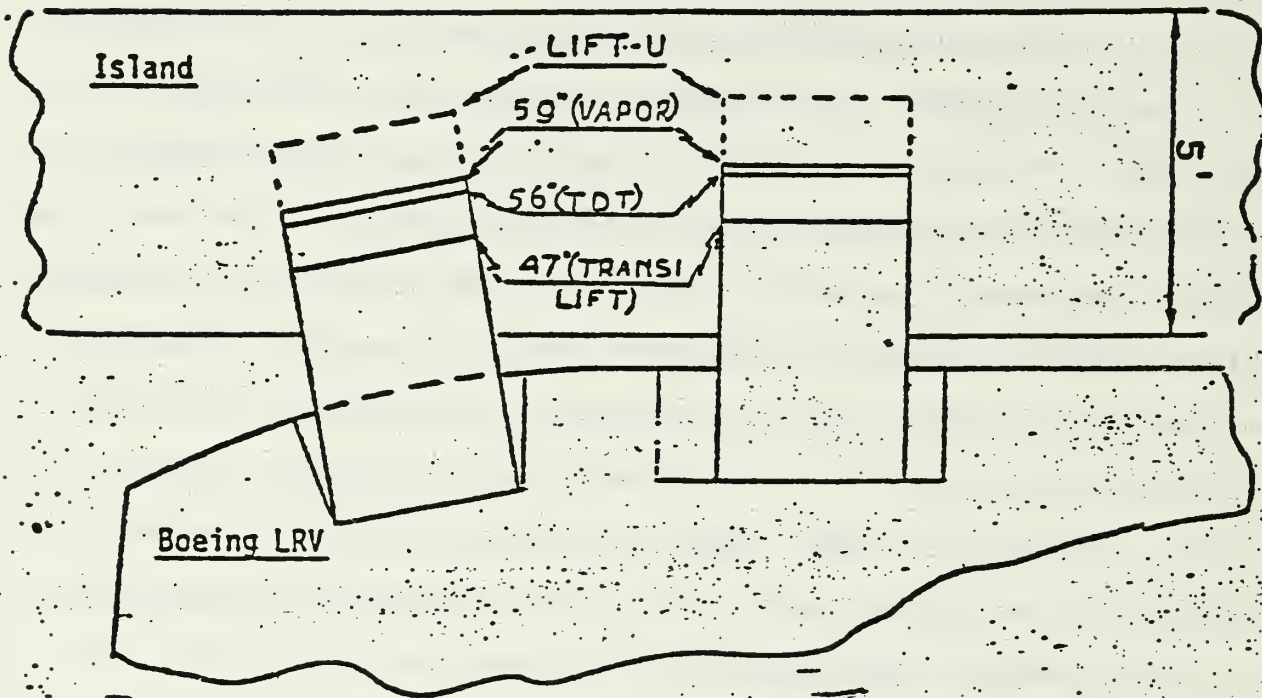


Figure E.3-1 Boeing LRV at-Island Platform

concept, line capacity, is a vital measure of how much throughput the transit service has. Usually, it is measured in passengers passing a given point in a period of time, (e.g., passengers per hour). The line capacity is a function of vehicles per hour and the passenger capacity per vehicle. Vehicles per hour is in turn related to the headway and the dwell time.

Consider an example, suppose the Green Line has a 75-second headway in the peak hour. (This approximates the full schedule were all equipment available.) This would result in 48 trains per hour past a certain point, say Arlington. If we assume each train has two vehicles with a capacity of 100 passengers/vehicle then line capacity equals $100 \times 2 \times 48 = 9,600$ passengers/hour. Maintenance of this line capacity is vital. Introduction of dwell time delays (for any reason) would reduce the throughput. If the lift took an extra three minutes to cycle and board (optimistic under crush conditions) and was used only twice during a peak hour, a total of six minutes delay would affect all following trains. Line capacity would be reduced by 10%, to 8,640, a completely unacceptable result since the Green Line is already carrying passenger volumes in excess of capacity (witness the crush conditions).

For similar reasons, the level of service to all passengers would be reduced substantially. It should be emphasized again that this is not because of the wheelchair itself, but because the practical operation of the device chosen to board the wheelchair

(the lift) delays the vehicle (and all subsequent vehicles) for so long. This was shown in a computer simulation carried out by the U.S. Department of Transportation Systems Center. Using favorable assumptions (3 minutes additional dwell time for lift operation; 40 wheelchair trips per day), it was shown that the average passenger would experience a 29.3% increase in wait time and an 11.7% increase in overall transit travel time. Level of service reductions of this magnitude would have the most severe and unacceptable ramifications. Further, these level of service reductions would go up if more wheelchair trips were introduced into the system.

E.3.3 OPTION 2: COMBINATION OF LIFTS AND MINI-PLATFORMS

A recent study of light rail and commuter rail (the 321(b) Study) was carried out nationally a consultant under contract to U.M.T.A. The purpose of this study was to develop a solution for making all U.S. light rail and commuter rail systems accessible and to estimate the cost thereof. The solution was to be the low-cost one, not necessarily the best. A somewhat site-specific solution was costed for the M.B.T.A. which relied on the concept of a combination of lifts on the vehicles and mini-high platforms at all Green Line subway stations and at Ashmont on the Mattapan Line. The consultant's assumptions were that a fleet of 175 Boeing and 90 PCC cars would constitute the M.B.T.A.'s light rail fleet.

A mini-high platform is a small platform at car floor height located adjacent to the track and reached by a ramp. Suggested platform size was 5' by 10'. Its purpose is to allow a wheelchair to roll from the platform into a vehicle doorwell which has a high-low step device and is in the high step position. The major rationale postulated in the 321(b) Study for the mini-high platform concept is that by eliminating lift use in subway stations, the negative impacts on dwell time and line capacity can be avoided. (This was previously discussed.)

This concept, as developed in the 321(b) Study, worked as follows: Each LRV was hypothesized to have two lifts, one in each of the driver's doors. All side doors (four per car on the Boeing LRVs) would have high-low step devices. Above ground, a wheelchair boards via the front door lift. In the subway stations, there is one mini-platform per station. If a wheelchair patron desires to board or alight, the LRV stops with one side door adjacent to the platform. The high steps are raised, the gap-closer (which is part of the mini-platform) extends, and the wheelchair leaves or enters the vehicle. Access to the platform itself is via a ramp and access to the station is via elevators. Where left-hand boarding occurs, the situation is repeated. The driver controls the platform-mounted gap closer by turning a control which is reached through the window.

The concept has a number of practical and conceptual problems which indicate that it is not viable. These problems include:

crush conditions, station dwell time, delay of operations, adjustment of the high-low step device, the gap-closer, crowd flow into the vehicle, and passenger communication with the driver.

The concept was that one or more mini-platforms would be built at each station in each direction. Thus, there would always be a specific stopping point for the train, so that one of the side doors always lined up with the platform. Stopping in this position, one door would always be dedicated to the platform. Ambulatory people would, of course, use this door and the platform too. Overall, dedicating one-third of each vehicle's door space to a platform with ramps, steps, or railings would reduce the overall crowd flow capacity somewhat, with undesirable consequences.

The alternative is to have the mini-platform located at one end of the station. The train would stop at the platform only in the event that a handicapped person desired to board. Such an approach presupposes that the train would then pull further into the station, and stop again for other passengers. Since the handicapped person would use the high platform steps to the platform, but the other passengers would use the low steps to get down from the vehicle, the steps would need to be repositioned between the two stops. In turn, this would probably require that the doorwell be cleared of standees, a problematical task during crush conditions. Thus, the mixed use of both high

and low steps in the subway tunnels, where crush conditions are prevalent, is not advisable. It is worth noting that a wheelchair passenger desiring to alight, in the situation where the vehicle makes a special stop at the mini-platform, would have to communicate this desire to the driver. How this is to be accomplished during crush conditions has not been explained yet.

The gap-closer device, alluded to in the study, extends from the platform to the vehicle door. No gap-closer of this sort has ever been designed or demonstrated on light rail and its ultimate success is therefore not assured. Since we have shown above that the vehicle should preferably always stop at the mini-platform, it might be easiest to postulate that the gap-closer would always be triggered. This would eliminate the need for signalling from the passenger to the driver, which is highly improbable, and driver control of the gap-closer, which is also improbable. Since most of the mini-platform, and gap-closers would be on the right side of the vehicle, the driver would be very poorly placed to observe the working of such a device.

Automatic operation would, however, also present problems of reliability and safety. If a gap filling device is activated while people are entering or exiting a rail vehicle, it may present a safety hazard. If the gap-closer jams in its extended position, it may possibly delay or block passing vehicles until it can be retracted. Even if a retraction can be done manually by a starter, the time required to do this would produce unacceptable delays on the low-headway Green Line subway.

Finally, even mini-platforms take up substantial space. A ramp of at least 34' is needed to reach the platform, which is 34" above ground. Green Line stations such as Kenmore, Haymarket, Park, Copley, and Arlington, have very limited floor space. In some stations, columns are located less than 5' from the side of the vehicles. These stations often become very crowded; insertions of a major barrier to crowd flow (such as a mini-platform) would be both detrimental and possibly dangerous to the extent that crowds might be forced into the tracks to get around the mini-platform.

If mini-platforms were placed at station ends and double-stopping permitted, then dwell time impacts would likely be unacceptable whenever the mini-platform was used. Since this alternative also hypothesizes the lifts on the vehicles, no advantages would be gained and additional disbenefits would be generated.

This alternative is also subject to many of the same objections seen in Option 1. This alternative presupposes lifts on the light rail vehicles, which would create all of the operational, mechanical, and safety problems discussed earlier. The dwell time impacts of the mini-platform concept would also be substantial, with subsequent unacceptable impact on the line capacity.

In summary, this alternative is not acceptable.

E.3.4 OPTION 3: COMPLETE HIGH PLATFORM CONVERSION

Complete or near complete high-platform conversion of the Green Line has been suggested as a third alternative which would satisfy

the 504 requirements. The general concept is that all light rail operation on private right-of-way could conceivably be converted to either:

- (a) a standard rapid transit operation, or
- (b) a system in which a modified series of high and/or low station/stops are provided and vehicles have high/low steps

Complete high platform conversion is difficult because of the surface operation of the Green Line. Basically, almost all platforms on Commonwealth Avenue and Beacon Street are too narrow. Also, half of Huntington Avenue operates in the street.

In the central subway, which is quite curved and not up to rapid transit standards, severe construction problems would be encountered. Several stations have curved track, which could create serious problems. The Government Center inbound platform is a prime example of this.

In either alternative, a completely new set of vehicles would be needed. Standard rapid transit cars would not fit through the tunnels. All cars on the Green Line have to meet short radius curves and need to have tapered ends. The tapered end means an angled door. Since a door must be at the front because of fare collection above the surface, a front angled door will always be present. In turn, the angled front door could not be utilized in any high platform design. The front door would have to be locked shut during high platform operation (which

of course means that on-vehicle fare collection could not take place at a surface high platform). Thus, any potential gains in crowd flow by reducing board/alight time would be offset by losing the use of one of the doors.

Provision of high-low steps on a new fleet of vehicles, in conjunction with a partial high platform modification, would also pose problems. The raising/lowering of the steps probably cannot take place with standees on the steps. This contradicts the crush conditions prevalent on the Green Line.

E.3.5 CONCLUSIONS

The preceding discussion demonstrates that each alternative is inherently unsatisfactory. Although each option has high (and uncertain) costs, the real drawbacks are primarily operational. The M.B.T.A. remains committed to the goal of full accessibility for the handicapped. It supports the introduction of service to all handicapped, including those in wheelchair, on all parts of the system, including the Green Line. However, none of the methods described above will allow the achievement of that goal in a realistic and safe way.

As a result, it is recommended that the M.B.T.A. apply for a temporary waiver to be applicable to all light rail facilities, until such time as better solutions become available. One possibility is to defer accessibility improvements until the Green Line is substantially rebuilt. The alternate service, which the M.B.T.A. proposes to operate instead, is explained in detail in Section G.

E.4 COMMUTER RAIL

The M.B.T.A. operates a fairly extensive commuter rail (CRR) system. Today, all suburban and downtown stations are low-platform and the system as a whole can be considered as completely unusable by handicapped persons who cannot use steps. The 504 Regulations require that:

- o Key stations be made accessible within 30 years to handicapped who cannot use steps.
- o At least one vehicle/train be accessible to handicapped who cannot use steps within 10 years.
- o Any new vehicles purchased after 1982 must be accessible to handicapped who cannot use steps.
- o The whole system must be accessible to handicapped who can use steps by July, 1982.

The approach which the M.B.T.A. intends to take is the high platform approach, in which key stations will have either full-length or mini-platforms and vehicles will have trap doors and bridge plates to allow level entry.

Vehicles

The M.B.T.A. CRR fleet is currently being upgraded, replaced, and modernized. As plans stand, the future fleet will number 270 vehicles, All vehicles are planned to be fully accessible to all handicapped, including those in wheelchairs. The new fleet of 60 Pullman-Standards, recently

purchased is already accessible. The trains need only the provision of a bridge plate (described below) to cover the gap between the edge of the trap (the vehicle) and the edge of the high platform.

There is a currently programmed plan to rebuild 93 Budd Rail Diesel Cars as soon as capital funding becomes available from U.M.T.A. for this purpose. When rebuilt, these cars will be completely accessible, and will have bridge plates. The specifications and diagrams of the bridge plate are available from the M.B.T.A.

Thus, in summary, the M.B.T.A. plans on a fleet in which all cars are completely accessible when at a high platform. This will eliminate any need for rearranging of cars, special designations on cars, or stopping trains at particular locations (except for deboarding).

Handicapped persons will be able to use any car they like. Conductors can easily inform the engineer of the location of a handicapped persons so that the train can stop appropriately at the mini-platform if no full length platform exists. Even if it does become necessary to have handicapped persons use designated vehicles (such as the first or last car on the train), that train position can be filled by any vehicle in the fleet. This is very important as it will eliminate the potential cost of switching cars around in the yards.

Key Stations

Selection of key stations is based on the guidelines given in the U.S. Department of Transportation's 504 Regulations.

These guidelines state that CFR key stations should include:

- o Transfer, interchange, and terminal stations.
- o Stations near major activity centers.
- o Stations that are distant from others.

Commuter rail stations are typically widely spaced (compared to rapid rail), and are primarily reached by automobile, rather than by bus or walking. The emphasis upon auto access allows greater flexibility in picking key stations, than would be the case with rapid rail. Also, a lower overall percentage of stations can be designated as key, without sacrificing potential handicapped patronage on the system. The reason for this is that access by auto is much more flexible, as the potential passenger can drive to the designated accessible stations. At the same time, wide spacing between stations means key station selection should avoid the possibility of requiring lengthy drives to reach accessible stations whenever possible.

The CRR system is also in a state of flux. Recently, service has been extended on existing lines. Other expansion (or reductions) of service may take place in future years; these cannot be predicted here. Tracks, roadbed, and stations will gradually be improved during the next 30 years as needs dictate and as funds become available.

For these reasons, the M.B.T.A. has proposed two tiers of selected stations. The first tier is key stations; those which must be made accessible, eventually, to satisfy transfer, interchange, or terminal criteria. The second tier is "key pool" stations; those stations which are fairly major and which could meet the "reasonable spacing" criteria, and from which a selection can be made. Not all of the key pool stations need be modified. Some can be modified over time as construction and modernization priorities permit. This flexibility will enhance the ultimate achievement of access to the system as a whole.

Figure E.4-1 shows the recommended set of key stations. It includes all major central city stations, terminal stations, auto access stations at major highways, and extremely high volume stations. There are 22 key stations, constituting 23% of the total of 95 CRR stations. The ridership and reason for choice are also shown in the figure.

Figure E.4-2 shows the "key pool" stations. By and large they are selected on the basis of ridership and location. The pool is large enough to afford an ample choice for future consideration. There are 32 key pool stations, constituting 34% of all stations. Added together, the key and key pool stations make up 57% of all stations, although all will not necessarily be modified. For example, to meet the U.M.T.A. 33% guideline, only 10 (or less than 1/3) of the key pool stations need be modified, once all of the 22 key stations are modified. However, the 33% guideline

should not be viewed as a rigorous mandatory requirement, as it only is a suggestion of how to meet the "not too distant" requirement which appears in the regulation. M.B.T.A. policy will emphasize flexibility and coordination with other programs and will probably result in more than 33% of the stations ultimately being modified.

Figure E.4-3 shows the allocation of key and key pool stations among lines and branches. Each branch/line has at least one key station. In this figure, a total of three temporary stations and six out-of-state stations are excluded. Temporary stations are not covered by the regulation and out-of-state stations will be handled by other governmental authorities.

Mini-Platforms

The approach selected by the M.B.T.A. is to build mini-platforms at most stations which require modification - that is, all the key stations and some portion of the key pool stations. Mini-platforms will be long enough to serve two vestibules on adjoining cars. Both ramps and steps will allow access to the platforms.

Some stations will have full-length complete high platform modification. In particular, South Station, Back Bay, Forest Hills, and Route 128 will be so converted as part of different newly funded Rail Improvement Programs. However, some suburban stations under the M.B.T.A.'s aegis may receive full-length platforms depending on station layout and available funds. Which stations cannot be foreseen at this time.

Demonstration Program

No body of experience on mini-platforms is available to guide us, either from other operators or in particular from the M.B.T.A. However, full-length high platforms are certainly well-established and mini-platforms seem reasonable. Also, the costs of mini-platforms, while somewhat uncertain, are probably not that high, in and of themselves.

As a result of this line of reasoning, a demonstration program at a few selected stations is proposed as a way for the M.B.T.A. to test the utility of this idea, before beginning further station modifications. If successful, the mini-platforms built during the demonstration would be the nucleus of the whole CRR accessibility program. By selecting several different designs, an optimum design could probably be generated. Purposes of the demonstration would be to:

- o Test out safety aspects. .
- o Ascertain the impact of ramps and platform structure on station environment and passenger flow.
- o Test out feasibility of vehicle-platform interaction and adapter plates.
- o Test accuracy of train stopping procedures.
- o Test impact of winter weather on platforms and users.

- o Measure demand for platforms by both handicapped and other persons.
- o Elicit data on different platform designs to see which works best in different kinds of station layouts.
- o Test passenger-conductor interactions.
- o Determine if designated cars are needed for mini-platform users.
- o Assemble better data on the cost of mini-platforms.
- o Determine impact of high platforms on freight operation.

If three stations were selected for the demonstration, a total of six mini-platforms would be needed. Since they would be suburban stations, they should be on lines feeding the accessible central city stations (South Station and Back Bay) which will be reconstructed within the next 3-5 years. North Station presents some physical problems and the solution there may prove to be the use of a portable powered wheelchair lift. Only total high platform reconstruction would suffice otherwise.

The exact number of stations will depend upon later detailed demonstration planning. However, the following stations have been selected as a pool from which to pick demonstration sites:

Framingham

Wellesley Square

Stoughton

Mansfield

Franklin

Norwood Central

Canton Junction

All connect to South Station where access (in cooperation with AMTRAK) will be established.

Costs

The total costs of reaching CRR program accessibility are somewhat uncertain. This is because:

- (a) The only source of cost data on mini-platforms comes from the 321(b) Study. There is no way to prove that these costs are accurate, although likewise no proof exists as to how inaccurate they are, either.
- (b) The 321(b) Study did not cover all of the M.B.T.A.'s new/future CRR stations.
- (c) There is no way to project the 1979 costs used in the 321(b) Study into the future to account for inflation.
- (d) It is impossible to specify exactly which stations will ultimately be modified.
- (e) Extent and cost of full-length high platform conversions have not been estimated at this time.

What is certain is that the M.B.T.A. anticipates little impact on operating costs and only marginal vehicle modification costs. What is available on key station mini-platform modification costs is shown in Figure E.4-4. This data is inadequate and is another reason for supporting a demonstration program.

CRR KEY STATIONS

<u>LOCATION</u>	<u>STATION</u>	<u>RIDERSHIP</u>	<u>COMMENTS</u>
Central City	North Station	N.A.	Rail Junction
Central City	South Station	N.A.	Rail Junction
Central City	Back Bay	N.A.	Activity Center
Central City	Forest Hills	N.A.	Rail Junction
Eastern Line	Beverly	1,449	Junction; Activity
Eastern Line	Ipswich	335	Terminal
Gloucester Branch	Gloucester	251	Terminal
Merrimack Valley Main Line	Reading	1,682	High Volume
Merrimack Valley Main Line	Route 213	Open 1981	Terminal
Merrimack Valley Main Line	Rosemont-495	N.A.	Terminal
New Hampshire Main Line	Mishawum-128	Open 12/80	Auto Access
New Hampshire Main Line	Lowell	1,382	Terminal
Woburn Branch	Woburn	594	Terminal
Fitchburg	Porter Square	429	Transfer
Fitchburg	¹ Littleton-495	46	Auto Access
Fitchburg	¹ Gardner	55	Terminal
B&A Main Line	² Framingham	271	Terminal
Needham Branch	Needham Heights	195	Terminal
Franklin Branch	Franklin	N.A.	Terminal
Shore Line	Route 128-Dedham	710	Auto Access
Shore Line	Mansfield	1,244	High Volume
Stoughton Branch	Stoughton	647	Terminal

FIGURE E.4-1 KEY STATIONS

²Framingham may present site specific problems.

¹Gardner is not on M.B.T.A. property.

KEY POOL STATIONS

<u>LOCATION</u>	<u>STATION</u>	<u>RIDERSHIP</u>
Eastern Line	Lynn	193
Eastern Line	Salem	569
Eastern Line	Hamilton-Wenham	322
Gloucester Branch	Manchester	247
Gloucester Branch	Rockport	159
Merrimack Valley Main Line	Melrose	410
Merrimack Valley Main Line	Melrose Highlands	419
Merrimack Valley Main Line	Wakefield	1,187
Merrimack Valley Main Line	Lawrence	46
Merrimack Valley Main Line	Bradford	94
New Hampshire Main Line	Wedgemere	661
New Hampshire Main Line	Winchester Center	968
New Hampshire Main Line	Wilmington	520
Fitchburg	Waltham	175
Fitchburg	Brandeis-Roberts	345
Fitchburg	Lincoln	376
Fitchburg	Concord	527
Fitchburg	W. Concord	424
Fitchburg	S. Acton	474
Fitchburg	Fitchburg	74
B&A Main Line	Newtonville	113
B&A Main Line	Wellesley Farms	199
B&A Main Line	Wellesley Center	359
Needham Branch	Highland	265
Needham Branch	Bird's Hill	654
Needham Branch	Needham Junction	737
Franklin Branch	Endicott	581
Franklin Branch	Norwood Central	413
Franklin Branch	Walpole	501
Shore Line	Canton Junction	876
Shore Line	Sharon	1,048
Shore Line	Attleboro	649

FIGURE E.4-2 KEY POOL STATIONS

NUMBER OF STATIONS

	<u>TOTAL</u>	<u>KEY</u>	<u>KEY POOL</u>	<u>OUT OF STATE OR TEMPORARY</u>	<u>REMAINING</u>
Central City	4	4			
Eastern Line	8	2	3		3
Gloucester Branch	8	1	2		5
Merrimack Valley Main Line	15	3	5	0	7
New Hampshire Main Line	10	2	3	3 (out)	2
Woburn Branch	2	1	--		1
Fitchburg Line	17	3	7		7
B&A Main Line	9	1	3		5
Needham Branch	8	1	3		4
Franklin Branch	13	1	3	3 (temp)	6
Shore Line	7	2	3	2 (out)	--
Stoughton Branch	2	1	--		1
<hr/>					
TOTALS*	95	22	32		41
		(23%)	(34%)		(43%)

*Excludes out-of-state and temporary stations.

FIGURE E.4-3 KEY AND KEY POOL ALLOCATIONS

<u>LOCATION</u>	<u>KEY STATION</u>	<u>MINI-PLATFORM COST (1979\$)</u>
Central City	North Station	¹ \$ 22,276 ² SWCP
Central City	South Station	N.A.
Central City	Back Bay	N.A. SWCP
Central City	Forest Hills	N.A. SWCP
Eastern Line	Beverly	150,000
Eastern Line	Ipswich	30,000
Gloucester Branch	Gloucester	46,000
Reading Line	Reading	48,000
Reading Line	Route 213	N.A.
Reading Line	Rosemont - 495	N.A.
New Hampshire Main L.	Mishawum - 128	N.A.
New Hampshire Main L.	Lowell	152,000
Woburn Branch	Woburn	44,000
South Acton Line	Porter Square	267,000
South Acton Line	Littleton - 495	N.A.
South Acton Line	Gardner	N.A.
B&A Main Line	Framingham	45,000
Needham Branch	Needham Heights	50,000
Franklin Branch	Franklin	53,000
Shore Line	Route 128 - Dedham	N.A. (AMTRAK)
Shore Line	Mansfield	405,000
Stoughton Branch	Stoughton	62,000

Source: 321(b) Study

FIGURE E.4-4 SAMPLE COST DATA

¹Reflects cost of portable powered lift device.

²South West Corridor Project - new construction.

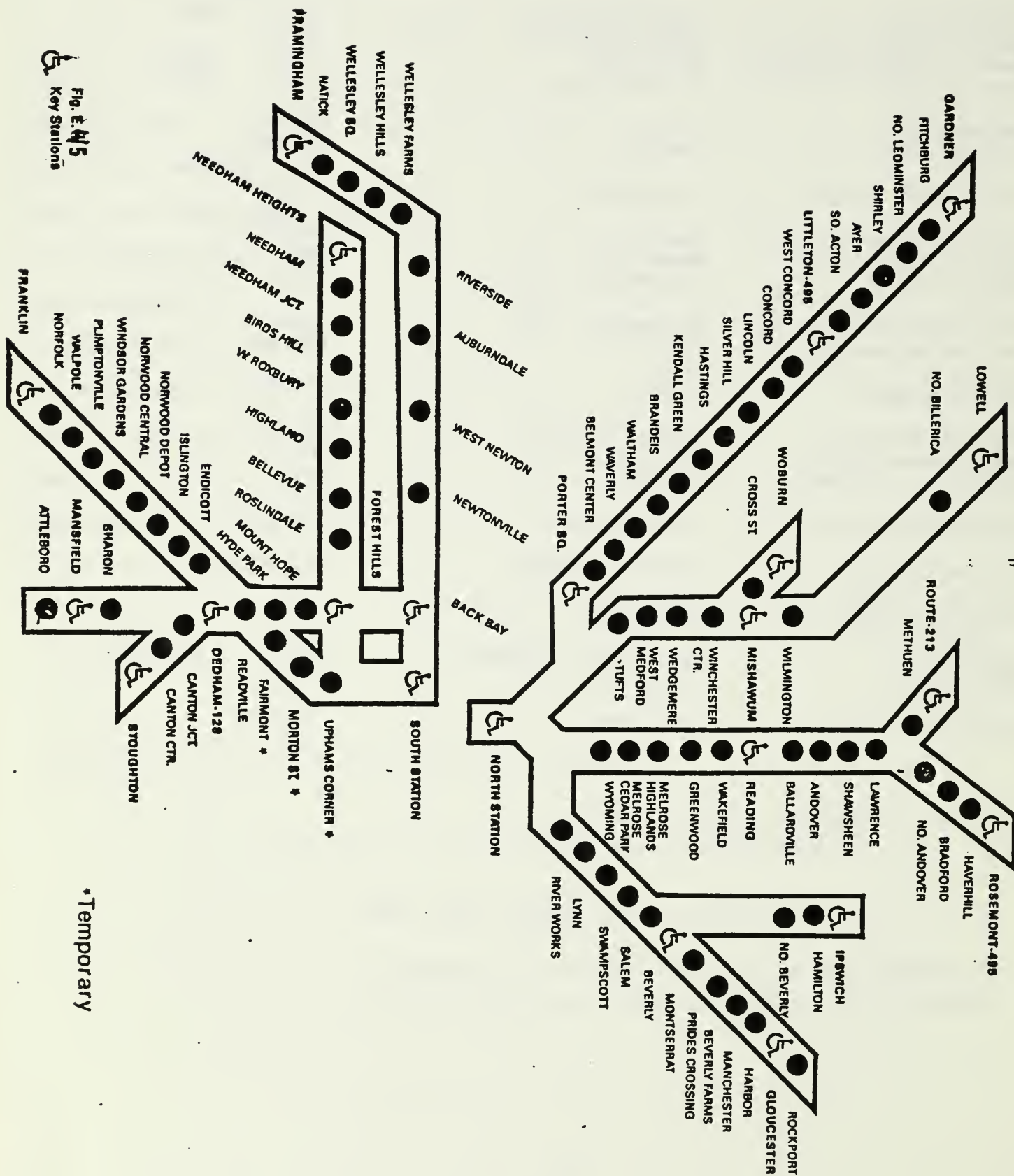


Fig. 2.45
Key Stations

*Temporary

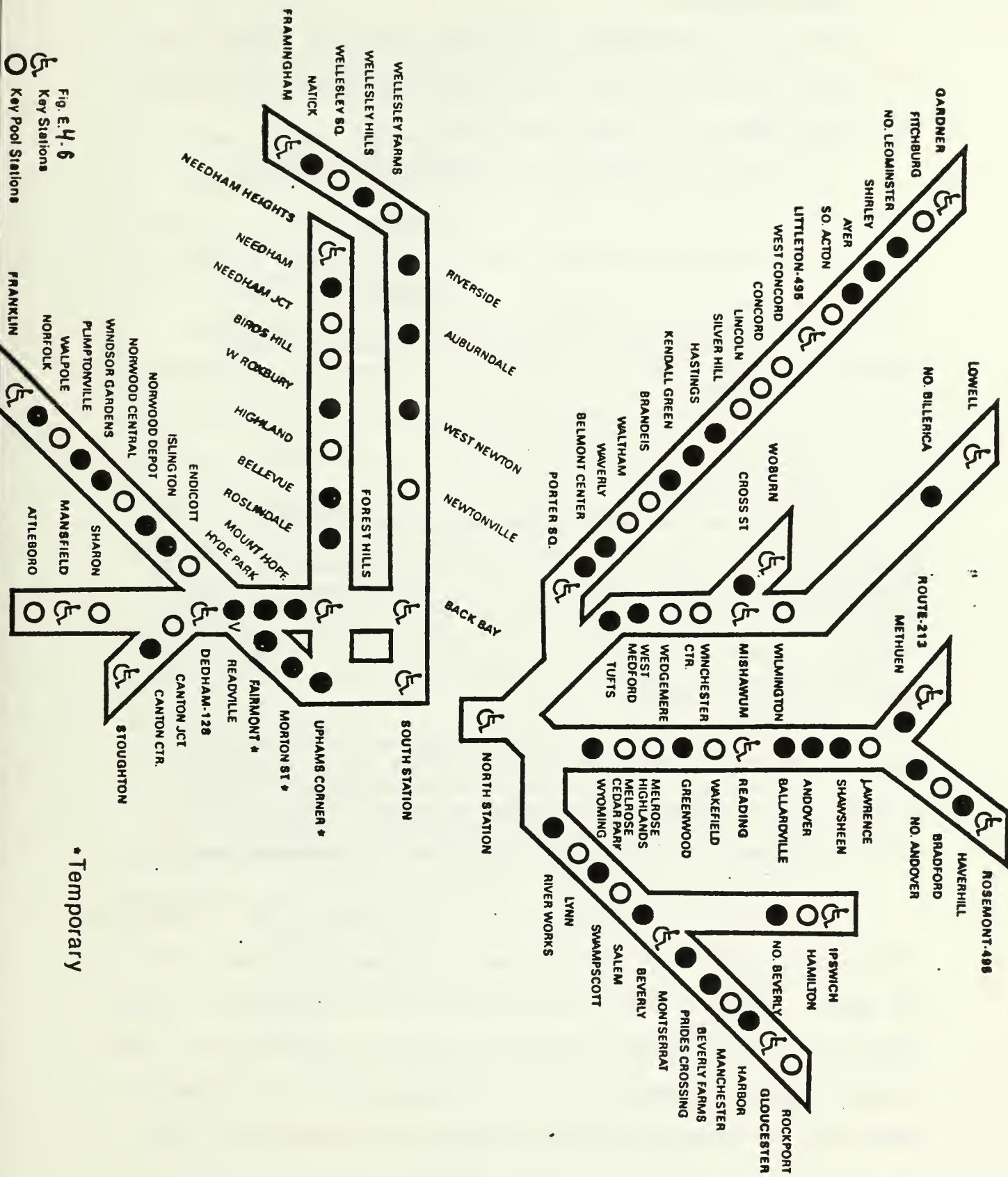


Fig. E.4-6
Key Stations
Key Pool Stations

*Temporary

E.5 OTHER SERVICES

The M.B.T.A. operates a few other services besides the previously discussed rapid rail, commuter rail, light rail, and fixed-route bus. These include:

- o Trolley coaches (also known as trackless trolleys).
- o Suburban services, which include both fixed-route and paratransit services.
- o Subcontractors operating fixed-route bus service.

Each of these is described below.

E.5.1 TROLLEY COACHES

Trolley coaches are treated separately in the U.S. Department of Transportation's 504 Regulations and are not considered as conventional buses. They are considered as "forms of mass transportation not (otherwise) covered..."

The Regulations require:

...systems shall achieve program accessibility... three years after the effective date...however... this period may be extended upon appeal to the... administrator if program accessibility can be achieved only through...structural changes... or replacement of...vehicles, and if other accessible modes of transportation are available...

The M.B.T.A.'s trolley coach fleet consists of 50 vehicles. They are of recent vintage and can be expected to last for 8 to 10 years. They do not provide wheelchair access and to do so would require structural changes or vehicle replacement. The trolley coaches operate in parts of Cambridge now covered by THE RIDE, and parts of Belmont and Watertown which will be covered by the planned interim service.

Therefore, it is recommended that the M.B.T.A. apply to the secretary of transportation for an extension of the program accessibility deadline for trolley coaches until such time in the future as new vehicles are purchased in the normal course of events. At that time, accessible vehicles can be purchased.

E.5.2 SUBURBAN SERVICES

Suburban service today consists of five intra-community circulatory services in Natick, Lexington, Needham, Winchster and Bedford. All are operated by private firms under contract. They are subject to the same 504 requirements as the M.B.T.A.'s regular services. These requirements depend upon whether the services are considered to be paratransit or fixed-route service. If considered as paratransit, the 504 requirements are fairly general. 49CFR, Part 27.91(a) states: "...the (paratransit) system must operate a number of (accessible) vehicles sufficient to provide generally equal service to handicapped persons...as is provided to other persons." Part 27.91(b) states: "New paratransit vehicles...shall be accessible...unless the paratransit system is...in compliance with paragraph (a)." If considered as fixed-route:

- o 50% of the service would need to be wheelchair accessible by July 2, 1989.

- o Any bus vehicles bought for this service directly by the M.B.T.A. in the near future (which is certainly conceivable) would need lifts.
- o All vehicles must be accessible to handicapped who can use steps by July 2, 1982.

Thus, the 504 Regulations allow paratransit systems to define and operate a "generally equal service," in contradistinction to the much more rigorous requirements for fixed-route service. The suburban services could be viewed as fixed-route; four of them operate on a fixed-route, fixed-schedule basis. The fifth (Natick) does have a demand-responsive element, but there are changes necessary to ensure the availability of an accessible vehicle for a patron in a wheelchair. However, it is clear that the services are circulatory intra-community programs. The nature and intent is more in line with paratransit than line-haul service. The M.B.T.A. views them as paratransit.

Thus, the 504 Regulations can be met in a number of different ways:

- (a) A handicapped dial-a-ride could be operated as an adjunct to the existing suburban service. The same private firm now offering the suburban service, or a social service agency could do this.

- (b) The interim/alternative service could be specifically extended to the towns which have suburban service to provide intra-town handicapped dial-a-ride. This would allow the same service as option (a), without signing any new contracts and with existing vehicles.
- (c) A user-side subsidy could be implemented in those towns for handicapped users.
- (d) The suburban vehicles could, of course, be replaced, in time, with lift-equipped vehicles.

Any of these four options could be used to satisfy the 504 Regulations. Final decisions will be worked out in conjunction with the towns involved. Options (a) (b) or (c) could also be used throughout the entire suburban area if the suburban bus program were to expand substantially in the future.

E.5.3 FIXED ROUTE SUBCONTRACTORS

The M.B.T.A. subsidizes three private firms which operate a small number of conventional public fixed routes for the M.B.T.A. These routes form a small though integral part of the M.B.T.A.'s overall bus network, and must also meet the 504 requirements. Program accessibility can be met in one of two ways. First, encourage the private carriers to purchase accessible vehicles or contract with companies which operate

such vehicles. Second, lease accessible M.B.T.A. buses to the contractors for use on the routes they serve. The latter alternative is probably the only option as private carriers have little incentive to purchase accessible buses on their own, and there is already a precedent for leasing M.B.T.A. buses to them.

E.6 Interim Service

Introduction

The U.S. Department of Transportation's 504 Regulations stipulate that interim service must be provided between July 2, 1982 and the date when program accessibility is achieved. Such interim service is to be for "handicapped persons who could otherwise use the system if it had been made accessible." The reason it is called interim is because it can be discontinued after program accessibility is achieved. It is evident that certain forms of paratransit (as THE RIDE) can provide interim service for both inaccessible bus and rail services. However a program accessible fixed-route bus service can also act as an interim service if it serves the inaccessible portions of a rail system.

Other restrictions on interim service concern the development of service standards discussed below. Funding constraints are that at least 2% of the region's Section 5 funds must support interim service (less if handicapped advisors agree that less is needed), but under no circumstances is the M.B.T.A. required (by the Regulations) to spend more than 2%. Since this 2% is a minimal amount of funding, a constant minimum of 2% can be assumed with greater amounts dependent on the availability of M.B.T.A. operating funds. As can be seen in the attached Table E6-1, 2% of 1980 Section 5 funds is only \$717,000, slightly less than the current (1980) RIDE budget. Future levels of Section 5 funding will no doubt go up, possibly substantially, but only on the action of Congress. Large increases in interim service would undoubtedly require more than the 2% standard.

Overall Objectives

The M.B.T.A.'s philosophy is that paratransit is one necessary component of mobility that should be provided at some level for the life of this plan. The M.B.T.A. rejects the "accessibility" versus "mobility" arguments as spurious and misleading. It supports facility and vehicle accessibility as a public goal but recognizes that no matter how much accessibility is ultimately achieved, there will always remain a need for some level of paratransit service. This service may or may not be provided by the M.B.T.A. This is so because of: 1) the inherent limitations of fixed-route, fixed-schedule service, and 2) the physical limitations of certain severely handicapped individuals.

Additionally, it is important that paratransit meet the criteria of interim service during the period when federal regulations require such, the M.B.T.A. will endeavor to continue paratransit on an ongoing basis.

Further, as greater amounts of accessible transit become available in the future, paratransit programs must be structured so as to interface in an integrative way with the fixed-route service. Paratransit should augment and coordinate with those parts of the transit system which become accessible. This may require changes in the operating philosophy and procedures of the paratransit service over the years. These changes will reflect the addition of both accessible bus routes and accessible rapid transit stations. The operative philosophy should be that all handicapped trips should go on accessible transit when possible. This would mean the eventual introduction of paratransit feeder services and other modifications.

It should also be emphasized that the potential demand for paratransit by the handicapped is going to outstrip the resources which are available to the M.B.T.A. to provide that service. Paratransit is an inherently expensive service to provide. There is presently no special mandate or funding source which supports ongoing paratransit for the handicapped. The 504 Regulations do not require that paratransit be provided on a permanent basis. A series of choices will have to be made by the M.B.T.A. concerning the viability of paratransit.

Service Standards

Regardless of the long term status of paratransit certain service standards for interim service have, of necessity, been developed.

- o Service Area: The Consumer Task Force has recommended that all 79 cities and towns within the M.B.T.A. region be served. However, the Authority feels that this level of interim service is not required by the regulation and further that the degree of funding necessary is likely to prove unattainable.
- The goal developed by the Authority, one also recommended by the task force, is provision of interim service to the 55 cities and towns now receiving bus service within 15 years (by 1994) (See Table E.6-3 for population estimates)

- o Service Hours: The standard is the existing service hours of THE RIDE program which are 7:00 A.M. - 10:30 P.M., Monday through Thursday, 7:00-1:00 A.M., Friday, and roughly 10:00 A.M.-6:00 P.M. weekends. Additional weekend evening service is a goal also if funding and demand are high enough.
- o Fare: The standard is to keep today's fare (\$.75) as the fare for the existing service area or for the base zone, if zonal operation is introduced in the future. That is, in the future, the first zone traversed would cost \$.75 and each additional zone \$.25, yielding a progressive fare structure.
- o Trip Purpose: Any trip purpose is acceptable.
- o Eligibility: Today's standard on eligibility will continue: the transportation handicapped who are unable to use transit. In future years as the service expands to the suburbs, new criteria may be allowed to include other people not transportation handicapped under existing definitions but who do not have adequate mobility because of the scarcity of transit service. However, this is a long-range possibility only. Finally, all residential eligibility restrictions will be removed.

- o Reservations: The standard is that 24-hour advance notice be the maximum required and that reductions in the notice required be effected as soon as practical. Ultimately, a two-hour advance notice system might be introduced. Reductions in advance notice requirement must be examined to ensure that it causes no negative effect in other areas of the service, e.g., increased trip time or wait time.
- o Zones: As the service area expands, zones must be introduced. Unlimited many-to-many service becomes less and less feasible (and less productive) as the size of the service area increases. One way to reduce trip lengths and increase productivity when a large area must be served is to break it up into zones. Many-to-many service can be offered within a zone. To travel outside the zone requires travel on an accessible line-haul mode, such as a rapid transit line or a bus. Thus, zonal operations can most effectively be implemented in conjunction with a growing amount of accessible mainline transit.
- o Distribution: For persons traveling downtown or between zones on an accessible rapid transit line, some means of distribution is required. In the central business district a distributor service is needed for travel from an accessible station such as Park, to the individual's ultimate destination.

Summary

This section has described the requirements for interim service and a recommended set of service standards. The standards themselves contain both long-range and short-range objectives. Implementation of the standards is contingent upon future developments, future funding, and future studies. A plan for implementing these standards in conjunction with "alternate service" is given later in Section G of this transition plan.

Interim service must be operative by July 2, 1982. It is worth noting that THE RIDE, as it operates today, meets the criteria for interim service. Thus, immediate changes must not be made to comply with the 504 Regulations. The reason for this is that, although all interim service standards are not met, the total amount of funding is greater than 2% of the M.B.T.A. Section 5 funds, and, therefore, meets the minimum funding criteria. (See Table E.6-2)

<u>YEAR</u>	ESTIMATED M.B.T.A. <u>SEC. 5 FUNDS</u>	<u>2%</u>	<u>5%</u>
1980	\$ 35.8M	\$ 717,000	\$1,790,000
1981	\$ 36M	\$ 720,000	\$1,800,000
1982	\$ 37M	\$ 740,000	\$1,850,000
1983	\$ 38M	\$ 760,000	\$1,900,000
1984	\$ 39M	\$ 780,000	\$1,950,000
1985	\$ 40M	\$ 800,000	\$2,000,000

TABLE E.6-1

ESTIMATES OF FUTURE FUNDING
FOR INTERIM AND/OR ALTERNATIVE SERVICE

	<u>NUMBER OF VEHICLES OWNED</u>	<u>ACTIVE VEHICLES</u>	<u>OPERATING HOURS</u>	<u>OPERATING BUDGET</u>
<u>Existing</u>				
(April, 1980)	30	22	4,500/mo.	\$ 79,694/mo.
Fall, 1980	34	22	5,000/mo.	\$ 84,000/mo.
<u>Estimated</u>				
1981	62	50	132,000/yr.	\$ 2.244M/yr.
1982 - 4	82	65	171,600/yr.	\$ 2.92M /yr.

TABLE E.6-2

ESTIMATED EXPANSION OF PARATRANSIT SERVICES

ESTIMATED ELIGIBLE
POPULATION (TH)

TODAY

- | | |
|--|----------------------|
| <p>1. Existing service area of THE
RIDE: Brookline, Cambridge and
in Boston: Allston, Brighton,
Beacon Hill, Fenway, Kenmore,
Downtown, South End. North End,
Mission Hill, Roxbury Crossing,
Charlestown, East Boston and
South Boston.</p> | <p>21,962 (17%)</p> |
| <p>2. <u>By 1994</u>
Fifty-five cities/towns now
receiving M.B.T.A. <u>bus</u> service</p> | <p>116,080 (91%)</p> |
| <p>3. <u>By 2009</u>
To be determined.</p> | <p>NA</p> |

TABLE E.6-3

SERVICE AREA STANDARDS FOR INTERIM SERVICE

F: WAIVER REQUEST AND ALTERNATE SERVICE

The U. S. Department of Transportation's 504 Regulations state, "A recipient that operates a rapid rail, commuter rail, or light rail system in existence (now)...may...petition...for a waiver of any of its obligations under Section 27.87 or 27.89 with respect to accessibility for handicapped persons". That is, the program accessibility requirements for these modes may be waived. The waiver procedure is intended to introduce an element of local flexibility into the planning process.

The Regulations state that a waiver petition must be accompanied by an "...alternative service substantially as good as or better than that which would have been provided absent a waiver". Further, if the petition is from the M.B.T.A., the "...petitioner shall spend...5% of the urbanized areas' funds under Section 5... on this alternative service." That is, a waiver will require a compensating alternative service funded at a higher level (5%) than the interim service (only 2%). The required funding levels are not additive, however, so that a system with both interim and alternative service will only have to spend 5% of the Section 5 funds.

The Regulations are written to allow for system-wide waivers. However, the MBTA does not seek a system-wide waiver, because of the M.B.T.A.'s public commitment to accessibility and because of the large amount of accessibility planned currently for the Rapid Transit lines. Rather, the M.B.T.A. is encouraged to seek a temporary waiver for the Light Rail System only. A mode wherein complete wheelchair accessibility is unworkable, unrealistic, and excessively costly.

As discussed earlier, the Light Rail System, (i.e. Green Line and the Mattapan High-Speed Line), presents unique difficulties and problems, due to the nature of the vehicles, tunnels, platforms, operating policies and line capacity. None of the three options discussed earlier for Light Rail accessibility is at all reasonable. All options have substantial difficulties, and astronomical costs.

The Green Line contains the nation's oldest operative subway (opened in 1897). The Green Line represents the remainder of the once extensive network of trolley and streetcar lines (built from 1880-1930) which once blanketed Boston, Massachusetts, and most of the country. It is apparent that the Green Line will not last forever, but must someday be party to extensive rebuilding or even replacement by a new, modern, rapid transit line. Unfortunately, accessibility may have to be delayed until such time as this extensive rebuilding occurs or a great improvement in Light Rail accessibility technology occurs. Therefore, the waiver recommended herein is viewed as temporary.

ALTERNATE SERVICE

It is possible instead to postulate an alternate service for the Light Rail System which would be of equal quality, would offer extra amenities not found on the Light Rail system, and which would have substantially greater capacity for carrying wheelchairs than the Light Rail System.

Alternative service for the Mattapan Light Rail Line can be provided easily on a bus route, which runs from Mattapan to Ashmont and directly parallels the Light Rail Line. Under the schedule

of bus accessibility this route will be wheelchair accessible long before the necessary date for Light Rail program accessibility. This substitution should be satisfactory, and provide a directly equivalent service.

There are two options for providing Green Line alternate service. In both cases, a combination of accessible fixed-route bus service and paratransit is called for. The two options can be classified as (1) "direct equivalent paratransit" and (2) "enhanced paratransit". They are both described below:

Option 1, Direct Equivalent Paratransit Service: an eligible handicapped person will be picked up at any Green Line Station or stop on advance notice. That is, about 30 minutes notice in the peak, and anywhere from 30-60 minutes notice nights and weekends. The van, which picked up the person, would only take him to another Green Line Station or stop. Trips going from one Green Line Branch to another would require a downtown transfer in a manner analogous to today's Green Line. In this way, the paratransit service would be as equivalent as possible to conventional Green Line service. Doorstep pick-up and drop-off would be eliminated.

The M.B.T.A. believes that direct equivalent service would not be as beneficial to the handicapped as enhanced service which would offer doorstep service.

Option 2: Enhanced Service for the Green Line can be easily provided for an integrated door-to-door paratransit service. It is worth noting that THE RIDE service area today covers about 90% of the passenger volumes on the Green Line. Also, THE RIDE today, in its rudimentary state, carries substantially more

wheelchair riders than the Green Line ever could.

In the future, certain service changes should be introduced to provide for a more completely enhanced service. These include extension of THE RIDE service area to cover all of the Green Line service catchment area (about $\frac{1}{4}$ mile on each side of the line), reduction of the advance notice time to less than 24 hours, possibly to two hours, and integration of this alternative service into the regional paratransit service, described later in the transition plan. Changes of this sort will provide a much better service than an accessible Green Line could, acting by itself.

Thus, the M.B.T.A. recommends Option 2, Enhanced Alternative Service. This would be part of an expanded, improved, and integrated paratransit program, featuring:

- o coverage of all remaining Green Line area not now covered;
- o reduction of the advance notice time;
- o expansion of system capacity.

Several features of paratransit service which are superior to an accessible Green Line will remain, i.e.:

- o Substantially greater comfort;
- o Door-to-door service;
- o Faster door-to-door travel time;
- o Security from potential crime, assault, crowds, pedestrian accidents, rowdy passengers, etc.;
- o Moderate personal assistance as provided by drivers;
- o Better protection from inclement weather, including snowstorms, rain, etc.

All of these factors indicate that an alternate service combining a Paratransit type of program will provide adequate comparable and, in fact, superior service.

G. Integrated Paratransit Program

An integrated paratransit system for the transportation handicapped is needed to:

- o Provide interim service, meeting the interim service standards.
- o Provide alternative service for the Green Line.
- o Provide enhanced mobility to those TH needing door-to-door service as an adjunct to mainline accessibility.

The plan introduced herein fulfills all three of those conditions. In addition, it attempts to maximize system productivity at or near budget levels which are reasonable in light of the M.B.T.A.'s resources. Note that this integrated paratransit program is an initial Phase I plan designed for relatively immediate implementation, i.e., within 1-2 years. It is based solely on the existing accessible rapid transit stations. In later years, the plan would have to be changed several times for at least two reasons:

- o To account for additional accessible rapid transit stations and/or buses.
- o To provide greater regional coverage.

Zones

A preliminary series of zones have been designated. As noted earlier, zonal operation is one of the interim service standards and is also a necessity for expanded regional paratransit services. An initial total of 8 zones has been defined,

covering much of the central city and some suburban areas. Further division of the M.B.T.A. region into additional zones will ultimately be necessary to expand coverage. However, this should only be carried out in the future after the initial operating experience with zones has been studied.

The eight zones are defined in Table G-1. Zone 1 is the downtown zone; zones 2 through 5 are radially structured zones which touch downtown; and zones 6 through 8 are feeder zones centered around accessible Red Line stations. Zone 9 represents an example of future expansion to an area in which an accessible rapid rail station is located.

The rules for travel between zones are as follows:

- o Internal Service: "Internal" means travel strictly within a zone. Internal service will be offered in zones 2 through 8 in a man-to-many door-to-door fashion similar to today's RIDE service, except that less advance notice will be required. Internal travel within zone 1, downtown, will occur on the distributor service defined herein.
- o Direct Downtown Service: In zones 2 through 5, the radial zones, direct downtown service to zone 1 will be offered on a single vehicle in a manner analogous to today's RIDE. Door-to-door service will be offered between the origin zone and the downtown zone. None of these zones (2 through 5) will have accessible rapid transit stations in the initial years of

this program. As accessible rapid transit stations do become available in some zones in the middle and late 1980s, however, these zonal travel rules will be changed to account for the additional "mainstream" opportunities.

- o Feeder Service: In zones 6 through 8, feeder service will be offered to an accessible rapid transit station on the Red Line. Zone 6 feeds Harvard/Brattle; zone 8, Braintree, and zone 7, Ashmont. That is, a trip from zones 6, 7 and 8 to downtown cannot be made entirely on a van-type vehicle, but must use both van and Red Line. Trips within the zone will also be provided on a many-to-many basis.

- o Distributor Service: Zone 1 downtown, will be served by a distributor service that handles all trips which have origins and destinations within the downtown area (zone 1).

Initially, this will be a patron travelling downtown to Park Street Station on the Red Line. However, it could also be someone making an entirely intra-downtown trip, e.g., from Quincy Market to Copley Square. As was previously noted, residency will no longer be required for any paratransit service, although preregistration will be.

Distributor service will likely be a variant of a point deviation service, making regularly

scheduled pick-ups and drop-offs at Park Street and will deviate from its route upon demand. It is anticipated that this service would be a true short-notice service insofar as demand and traffic conditions allow. Reservations for route deviation pick-ups will be necessary; however, persons at established pick-up points will not need to make a reservation. (See Table G-2)

- o Interzone Travel: A summary of the rules for zonal service is shown in Table G-2. Zones to which people may travel and how a destination is reached is described in detail. For example, Table G-2 shows that travel from zone 3 is possible as follows:

- Travel internal to zone 3 is possible on a many-to many basis.
- Travel from zone 3 to downtown (zone 1) is possible on a direct (many-to-many) basis.
- Travel to all other zones generally requires a transfer in downtown.

These travel rules are, of course, subject to change. It is conceivable that future demand may require a redefinition of these rules in order to ensure the greatest efficiency possible.

Demand: A preliminary estimate of the demand by the transportation handicapped for a zonal paratransit service is

shown in Table G-3. For each origin zone, the number of trips has been estimated in the following way. Today, THE RIDE is available to about 22,000 eligible transportation handicapped people who reside in the service area. In fact, only 2,596 of these 22,000 had even registered for THE RIDE. A typical month, May, 1980 reflects the following data:

Total passenger trips	= 6,131
Total vehicle hours	= 4,833
Average productivity	= 1.27 trips/vehicle hour
Trip rate	= .28 passenger trips/TH/month
Unduplicated (different) users	= 695 people

What this means is as follows. In May a total of 6,131 trips were made on THE RIDE. However, these trips were made by only a limited number of people, i.e., by only 695 of the 2,596 people who are registered.

If all THE RIDE trips are spread over the eligible population, (i.e., 22,000) it can be seen that, on the average, each eligible person could have taken .28 trips in the month of May. This is the trip rate. It provides a means to estimate the demand when service is expanded and zonal operation commences.

Table G-3, Column 1 shows the number of internal trips, i.e., the trips which stay entirely within one zone. A trip rate has been estimated for each zone which shows approximately how frequently TH people will want to travel within that zone. Multiplying the internal trip rate by the TH population projects the total internal trips.

Also shown is the productivity or the efficiency with which

vehicles will operate. Today, this productivity is 1.27 passenger trips/vehicle hour - a figure which is fairly low, but which is unavoidable because of:

- o Long trips (productivity usually goes down as trip length goes up).
- o Lengthy traffic delays (caused by Boston's congested traffic conditions).
- o Minimal ride-sharing, probably due to the relatively low demand density.

It should be pointed out that productivity cannot be raised indefinitely in any paratransit service for people with special needs. It is believed that the introduction of zonal service can increase productivity by lowering trip lengths and increasing demand density.

Returning to Table G-3, an estimated productivity is shown for the internal trips. It is higher than the current productivity because each zone is smaller than today's service area. The resulting number of vehicle hours is calculated by dividing the demand by the productivity. Later, vehicle hours is used to estimate cost and vehicle requirements.

Downtown trips are treated in the same way as internal trips. The trip rates represent the estimated attractions of downtown as a destination for the TH. The productivities for downtown oriented trips are somewhat lower than the internal productivities since the vehicles (for zones 2 through 5) usually travel a greater distance. For zones 6, 7 and 8, downtown trips represent travel to the feeder station only. Trip rates are a little lower (reflecting the reluctance to transfer) and productivities are a little higher

(reflecting many-to-one service). For zone 1, downtown trips represent all internal trips, i.e., downtown-to-downtown. It is assumed that all intra-downtown trips go on the downtown distributor.*

Finally, downtown distributor demand has been estimated by assuming that 75% of all TH people coming in on the Red Line will use the downtown distributor and 25% will walk or wheel to their destinations. The productivity for the distributor service is assumed to be quite high because trip lengths are short and multiple pickups and drop-offs are expected to occur at Park Street Station.

Alternate Service

It should be emphasized that zone 5 covers essentially all of the Green Line. This zone has been extended into Newton all the way to the Riverside terminal so as to act as the alternative service in the event that the Green Line waiver request is granted by the Secretary of Transportation. The coverage of zone 5 extends one-quarter mile on either side of the Riverside Line, i.e., an estimated 10% of Newton.

Benefits

The proposed zonal paratransit system would offer substantial benefits to the handicapped community. (See Table G-4) Primarily, these would come about through serving more TH people, allowing those served to travel more, and carrying those trips served at

*Trips from other zones are indicated in Table G-2.

greater efficiency. For example, the total number of eligible TH would go up by 129%; the total number of trips would go up 242%; the trip rate would go up by 49%. (See Table G-4) Finally, all of this would happen with better efficiency; vehicle productivity would increase by 45%. Last but not least, some degree of "mainstreaming" could be introduced. Today none of THE RIDE patrons receive any of the benefit of mainstreaming; under the proposed system, 17% of all trips would involve some travel on the Red Line.

Cost and Schedule

The proposed zonal system would, of course, cost more than today's RIDE. However, the cost is within reason and is just about the amount of funds that will be required by the 504 regulations to be spent if the waiver for alternative service is applied for and granted. The number of active vehicles required is less than what the MBTA would have if it were to receive the additional vans proposed as part of a pending capital grant. Thus, the cost is definitely feasible. Note that the cost per trip shown in Table G-5 decreases 32% when compared to today's RIDE service.

The proposed date for this service is July, 1982. There is good reason for choosing this date, they are:

- o July, 1982 is when interim service must begin; the proposed zonal system meets the interim service standards.
- o July, 1982 is a likely date on which to begin alternative service, which the proposed zonal system also provides.
- o Allows time for the M.B.T.A. to purchase additional vehicles.

- o Allows additional time to study and refine this system in conjunction with local communities.

Response Time

The response time for the integrated paratransit service will be reduced by 24-hours, in accordance with the interim service standards. The downtown distributor will have a very short advance notice, i.e., about one hour or even less.

Downtown Distributor

The downtown distributor represents one of the most important components of the M.B.T.A. approach to integrating paratransit and mainline transit for the handicapped. Few handicapped will choose to use the Red Line today to reach most downtown locations because there is only one accessible station in downtown (Park). It will be several years until additional stations begin to become accessible. Even then, a minority of downtown stations will be accessible, and the transit lines themselves, upon which the public depends for distribution, will remain primarily inaccessible to the handicapped. Further, there are enough distances involved within the downtown area that few handicapped will be able to walk/wheel to their destinations. Someone going to the Public Library in Copley Square from Park Street, for example, would have great difficulty.

Thus, a special downtown distributor is proposed to operate within the Central Business District for the handicapped. It will provide pickups and drop-offs at Park Street and will also handle trips which are entirely intra-downtown. Downtown

is roughly defined as the area bounded by the Harbor, the Charles River basin, Massachusetts Avenue, and the Massachusetts Turnpike. Within this area lies the commercial government and business center of M.B.T.A. region.

There are several options available for the implementation of the downtown distributor. It could be fixed-route fixed-schedule, entirely demand-responsive, point deviation, route deviation, or a combination. Further, it might be useful to vary the type of service from peak hours to off-peak to night and weekend service. It should be noted that the advent of accessible buses will not reduce the need for a downtown distributor service to any great extent. Simply because there are few bus routes in downtown, and only one which serves the Park Street Station.

The fixed-route, fixed-schedule option offers simplicity of use, elimination of telephone calls and dispatching, somewhat greater dependability, and the potential for greater convenience on the part of those who can get to the route. It would also be fairly easy to explain the system to the public. The disadvantage is that it is impossible to design a reasonable number of fixed-routes which cover all of downtown. It is inevitable that many potential destinations would be blocks away from the nearest route. Further, the high prevalence of one-way streets means that any fixed-route would be very circuitous. Also, demand for this service is expected to be low, at least initially. Fixed-route service operates best when demand is high.

The purely demand-responsive option offers the great advantage of door-to-door service, but has the disadvantages of requiring telephone calls, dispatching procedures, and some kind of advance notice on the part of the user. Although strenuous efforts to reduce the time of advance notice will be made, reductions to the level of a fixed schedule service cannot be made. Finally, it is not planned to have a demand-responsive pickup at Park Street itself.

Point deviation is a hybrid in which a vehicle is at a certain point at a certain time, but has no fixed route or schedule in between the points. Pickups can occur either by being at the established point or by calling the dispatcher for a pickup.* Drop-offs are equally flexible. Thus, this hybrid offers both doorstep flexibility with some element of fixed-schedule convenience and allows the user to choose between them based on what is best for him/her.

In its simplest case, there would only be one point, at Park Street. Vehicles would be at Park Street on a definite schedule to pick-up or drop-off riders. Between times they would respond to the individual travel desires of the riders by dropping off people who got on at Park or picking up people who had called the dispatcher and wanted to go to Park. Such dispatcher calls need take place only one-half hour before the desired pick-up time. Due to the size of downtown, two or even three vehicles might be needed in peak hours, but it also is possible that one vehicle would be sufficient at night or whenever demand was very low.

*At the nearest point to the caller and at a stated time within one (1) hour.

Point deviation can be expanded by adding points. For example, other locations which are likely to generate large numbers of handicapped trips can also be designated as fixed-schedule points. Examples might be Quincy Market, Copley Square, Massachusetts General Hospital, North Station, Government Center, etc. It is possible to stagger the scheduled pick-up times, so that, for example, Massachusetts General pick-ups occur every hour on the half-hour. Due to the fact that vehicles will always go to the pick-up spots, they should be carefully chosen. The potential demand, live parking capability, traffic conditions, one-way streets, and relationship to other locations all need to be considered.

Route deviation means that the vehicle travels along a specified route, but will also deviate for a doorstep pick-up or drop-off. The concept implies that the vehicle returns to the same spot on the route once the deviation has ended. It would seem that this could be difficult due to the complex maze of one-way streets which often prevent return to the exact same place. This concept is not as flexible as point deviation.

Ultimate resolution of the exact mode of service will depend upon greater study and upon the results of initial service implementation. Because this is such a new idea, it will be best to begin experimentally and to modify the service as needed. Some of the factors needed to optimize the service are:

- o Level of demand.
- o Temporal and geographic distribution of demand.
- o Vehicle travel times in downtown.
- o Strategic location of pick-ups and drop-offs.
- o Pick-up and drop-off times.

Most of these issues are somewhat undefined today. Experience with the distributor concept will be needed to finalize the program. An initial service ought to use the point deviation concept because it offers the greatest flexibility. By starting with only one point (Park Street), additional points can be added as demand grows. If demand becomes large enough, some parts of the point deviation service could be replaced with a fixed-route fixed-schedule service; however, this would probably not remove the need for a demand-responsive component providing doorstep service.

<u>ZONE</u>	<u>AREA COVERED</u>	<u>ESTIMATED NUMBER OF ELIGIBLE TRANSPORTATION HANDICAPPED</u>	<u>PROPORTION OF AREA COVERED</u>
1	Downtown, South End	2,324	4.6
2	Inner Cambridge, Somerville, Charlestown	7,936	15.8
3	East Boston, Winthrop	2,517	5.0
4	South Boston, North Dorchester	4,700	9.3
5	Roxbury, Jamaica Plain, Brookline, Brighton, Kenmore, Fenway, 1/10 Newton (This zone also acts as alternative service.)	16,071	31.9
6	North Cambridge, Arlington, Belmont	7,071	14.9
7	South Dorchester, Mattapan, parts of Roslindale and Hyde Park	5,908	10.9
8	Braintree and Weymouth	<u>3,859</u>	<u>7.6</u>
	TOTAL	50,386	100.0

Note: Table G-1 First phase of program is presented for discussion purpose only. The selection of actual zones and their specific boundaries will be determined by policy to be established in cooperation with consumer participation.

TABLE G-1 ZONES

<u>ORIGIN ZONE</u>	<u>NUMBER OF TH</u>	<u>TRAVEL ARRANGEMENTS</u>	
		<u>INTERNAL</u>	<u>DOWNTOWN</u>
1. Downtown, South End	2,324	Point Deviation	Point Deviation
2. Inner Cambridge, Somerville, Charlestown	7,936	Many-to-Many	Direct Service
3. East Boston, Winthrop	2,517	Many-to-Many	Direct Service
4. South Boston, North Dorchester	4,700	Many-to-Many	Direct Service
5. Roxbury, Brookline, Brighton, Kenmore, Fenway, 1/10 Newton (Alternate Service)	16,071	Many-to-Many	Direct Service
6. North Cambridge, Belmont, Arlington	7,071	Many-to-Many and Point Deviation	Feeder Service to * Harvard/Brattle
7. South Dorchester, Mattapan, parts of Roslindale & Hyde Park	5,908	Many-to-Many and Point Deviation	Feeder Service to Ashmont *
8. Braintree, and Weymouth	3,859	Many-to-Many and Point Deviation	Feeder Service to Braintree *

TABLE G-2 TRAVEL RULES FOR ZONAL SERVICE

Note: Phase II and subsequent plans would include additional zones (e.g., Malden, Melrose) to be added to the service area when the Southwest Corridor Project is completed.
(See below)

9. Malden, Melrose - 4,503 - Many-to-Many and Point Deviation - Feeder Service to Oak Grove *

*Many-to-One

Origin Zone Number	Internal Travel				Downtown Travel				Downtown Distributor			
	Trip Rate	Trips	Prod.	Vehicle Hours	Trip Rate	Trips	Prod.	Vehicle Hours	Trip Rate	Trips	Prod.	Vehicle Hours
1.									.4	930		
2.	.2	1587	2	793	.2	1587	1.5	1058				
3.	.15	377	1.5	252	.2	503	1.2	419				
4.	.2	940	2	470	.2	940	1.8	522				
5.	.25	4017	2	2009	.2	3214	1.5	2142				
6.	.2	1414	1.5	942	.15	1060	2.0	530		795		
7.	.2	1182	1.5	788	.1	590	2.5	236		442		
8.	.2	771	1.5	514	.1	385	2.5	154		289		

10,288	1.78=	5768	8279	1.64=	5061	2456	5	491
	Avg.			Avg.				

Zone Key

1. Downtown
2. Charlestown, Somerville, Cambridge
3. East Boston, Winthrop
4. South Boston, North Dorchester
5. Roxbury, Brookline, Newton (Green Line area only)
6. North Cambridge, Belmont, Arlington
7. South Dorchester (Ashmont area), Mattapan, Roslindale, Hyde Park
8. Braintree, Weymouth

Note: All trip rates, trips and vehicle hours are per month.

Also: 75% of feeder downtown trips assumed to use the downtown distributor.

TABLE G-3 - ESTIMATED DEMAND: ZONAL SERVICE

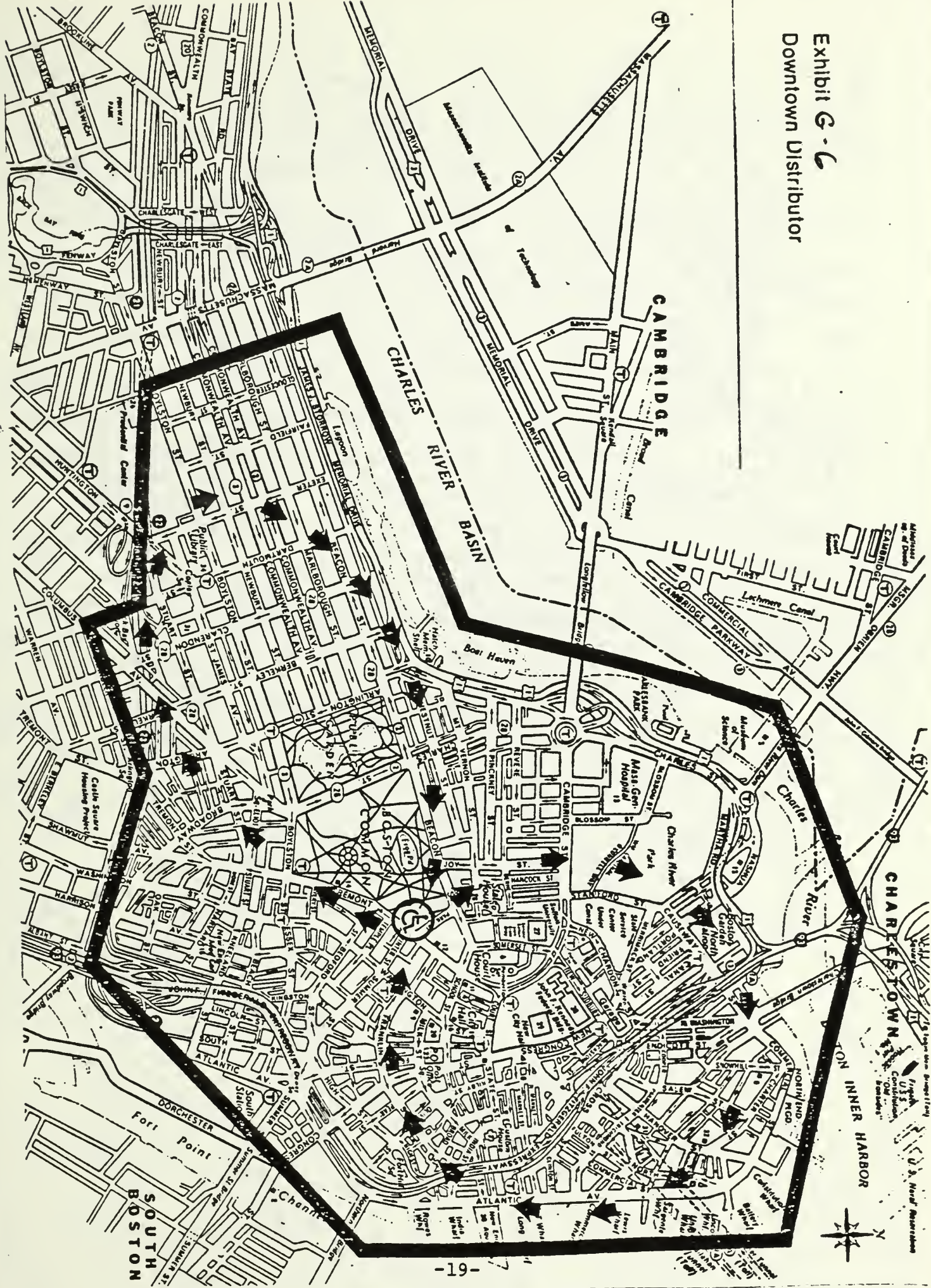
	<u>Proposed Zonal Paratransit Service</u>	<u>THE RIDE Today (May, 1980)</u>	<u>Percentage Improvement</u>
Total Eligible TH	50,386	22,000	129%
Total Number of Trips	21,023	6,131	242%
Average Trip Rate	.417	.28	49%
Average Productivity	1.86	1.27	46%
Total Vehicle Hours	11,320	4,833	134%
Percent of Trips Using Some Main- line Services	17%	0 %	

TABLE G-4 - BENEFITS: COMPARISON OF PROPOSED
ZONAL SYSTEM WITH TODAY'S RIDE

	<u>Proposed Zonal Paratransit System</u>	<u>THE RIDE Today (May, 1980)</u>	<u>Percentage Change</u>
Monthly Vehicle Hours	11,320	4,833	+134%
Estimated Cost at \$17.00/hr.	\$2,309,280/yr.	\$985,932/yr.	+134%
Number of Active Vehicles	52	22	+136%
Average Cost/Trip	\$9.15	\$13.39	- 32%

TABLE G-5 - ESTIMATED COST

Exhibit G-6
Downtown Distributor



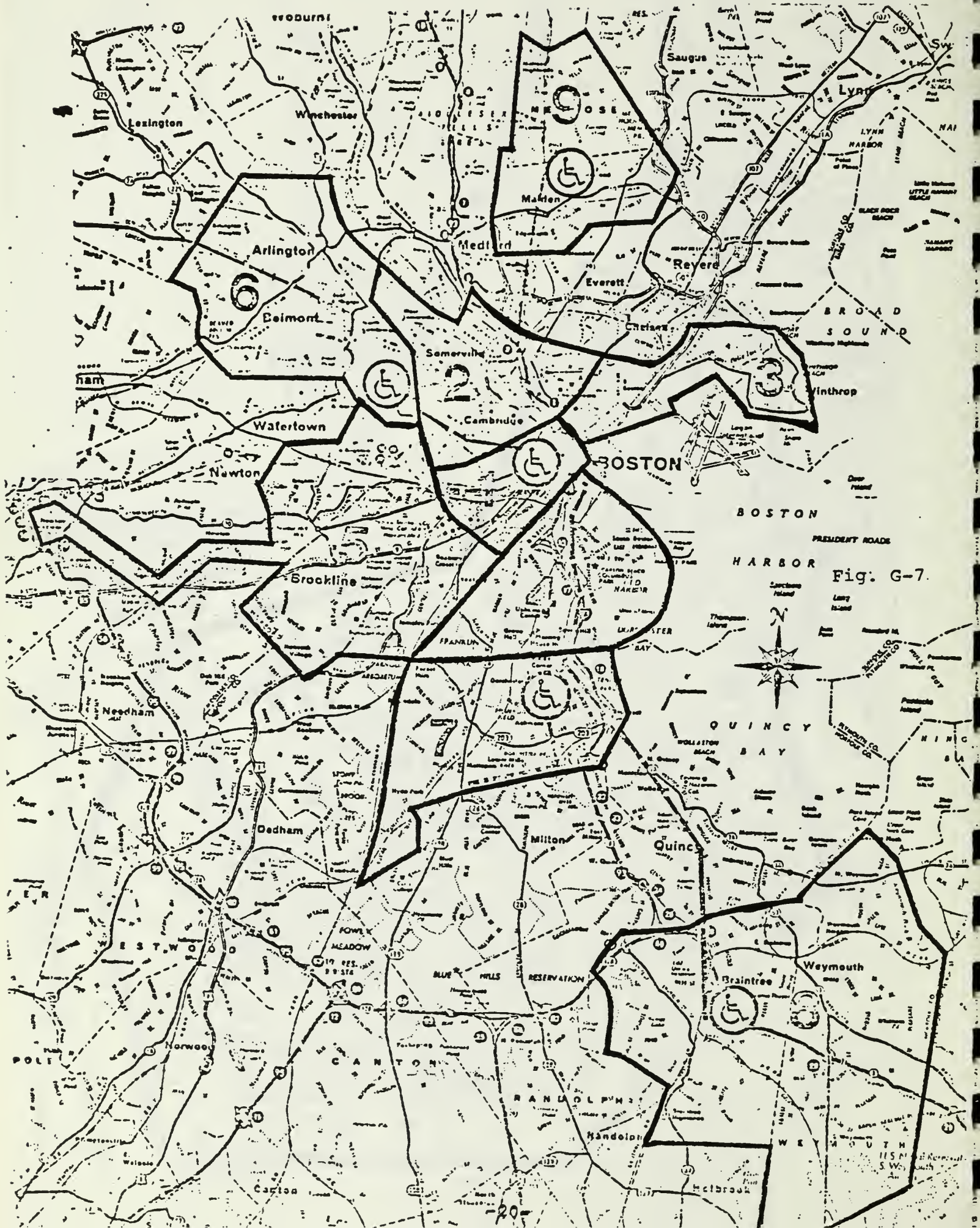


Fig. G-7.

H. FUNDING

The M.B.T.A. receives funding from a combination of Federal, state, and local sources. In addition, roughly 30% of the overall operational budget is recovered through user charges, i.e. the fare. By and large, funding sources are not generally available for specific services. Rather, funds for each service or project must be sought from the M.B.T.A.'s overall budget. Similarly, as there are no funds currently available specifically for 504 improvements, projects described in this Transition Plan must compete against all other (T) projects for funding.

Federal grants are available to the M.B.T.A. The major sources are:

- o Section 5

Section 5 funds are distributed on a formula grant allocation. The M.B.T.A. currently receives approximately \$35.6 million under this Section.

It is a multi-tier source with Tiers I, II, and III being operating assistance and Tier IV being a rather unique source of funds for the purchase of buses. THE RIDE vehicles are also purchased with these monies. The M.B.T.A.'s FY '79 "mark" was \$6.3 million.

o Section 3

Section 3 funds, with which UMTA pays 80% of a project's cost, are made available to various urban areas at UMTA's discretion, subject to an annual limit on grant awards. In the last several years, UMTA has established administrative targets ("marks") to the large urban areas such as Boston. In Fiscal Year 1979, the M.B.T.A. "mark" was \$48.5 million, of which \$5.1 was for Urban Initiatives Programs. For Fiscal Year 1980, it appears the UMTA "mark" for MBTA will be \$50 million. It should be emphasized that this "mark" is an informal administrative allocation that is subject to change at UMTA's discretion.

The bulk of capital programming falls under this section. For example, in FY 79, \$43.4 million of the \$48.5 million total was Section 3.

o Section 3 - Urban Initiatives

The term "urban initiatives" describes UMTA's response to the announcement, by President Carter on March 27, 1978, of an Urban Policy which would coordinate actions among a number of Federal agencies to confront the problems of the cities. The mass transit component of the Urban Policy is the Urban Initiatives Program which has three principal components: (a) intermodal transfer

facilities, i.e. locations to transfer from one travel mode to another, (b) transit malls, and (c) joint development projects, i.e. private real estate development that might be induced and/or enhanced by mass transportation projects. The Urban Initiatives Program has the further objective and requirement of stimulating new employment among long term unemployed and disadvantaged people urban areas and attracting increased private investment and aiding the economic base in distressed communities.

Presently, we are using Urban Initiative funding for work at South Station and Kendall Square.

We are planning work at Columbia and Wellington Stations.

o Section 23 - Interstate Highway Transfer

Title 23, U.S.C. funds, with which UMTA pays 85% of a project's cost, are made available to those urban areas which have withdrawn segments of the approved Interstate Highway network and redesignated the funds for use for mass transit purposes. In 1974, Massachusetts withdrew several Interstate Highway segments proposed for construction in the Boston area and made the \$603 million earmarked for these highways available for transit construction.

Later, the Federal Aid Highway Act of 1975 established a cost escalation provision to adjust for increases in construction costs. In effect, the uncommitted funds in the Interstate Highway Transfer account are earning "interest" because of cost escalation at the same rate as highway construction cost indices.

The Southwest Corridor and the Red Line Extension are examples of Section 23 funding.

o Local Share

UMTA currently provides either 80% or 85% (depending on the funding section) of the funds necessary to carry out a project; this amount may be referred to as the "federal share". The difference, either 20% or 15% is the "local share" and is provided by the sale of bonds which the Legislature has authorized the Authority to issue.

The Legislature has increased the MBTA's capital bond authorizations from time to time in order to ensure that funds are available to allow the Authority to "match" all available federal funds. When making such authorizations, the Legislature sometimes "earmarks" certain of the proceeds for specific projects or categories of projects.

In summary, no funds are available specifically for this plan. The MBTA will have to rely on Section 3 & 5 grants which are already highly in demand. New funds and perhaps some existing fund will have to be (re)programmed to comply with Section 504. This will likely be the responsibility of the Capital Budget Committee.

Within the Authority, the principal responsibility for programming capital improvements and expenditures rests with the Capital Budget Committee which is an interdepartmental committee consisting of the Chairman and Chief Executive Officer, and the Directors of Construction, Operations, Railroad Operations, Materials, Budget and Treasurer-Controller departments. Staff assistance is provided by the Capital program Section of the Construction Directorate.

One major task of the Capital Budget Committee is programming funds, the continually recurring process of balancing the annual need for capital funds (the demand) with the annual availability of Federal Capital Funds and local Bond funds (the supply). In the last several years, the Authority has relied heavily on phasing or staging projects into annual funding increments. The phasing process involves breaking up a program, or project, into annual funding requests. A project is treated as a bundle of construction and engineering contracts, procurements, force accounts and other internal costs, and projections are made as to the date when funds for the contracts, procurements, etc. will be obligated. A "sequence of obligations" is thereby established

for each program or project and is divided into federal fiscal year funding increments based on when the various cost items will actually be committed. The Authority then submits amendatory capital grant applications to UMTA to obtain capital grant funds, generally for one fiscal year. As each subsequent amendatory capital grant application is submitted, the costs of that project can be estimated more precisely to reflect more detailed engineering, the effects of inflation, and a more accurate projection of contract or procurement award dates.

TABLE H-1 FEDERAL CAPITAL GRANT ALLOCATIONS

(in \$1,000,000's of Federal Share)

	<u>Appropriations</u>		<u>Authorizations</u>	
	FY'79	FY'80	FY'81	FY'82
Section 3 - National				
- MBTA "mark"	1,200.0	1,300.0	1,515.0	1,600.0
	43.4	50.0	?	?
Section 3 - Urban Initiatives				
- National	50.0	80.0	(see note 1.below)	
- MBTA "mark"	51.1	17.0	?	?
Section 5, Tier IV (bus capital)				
- National	300.0	300.0	370.0	455.0
- MBTA allocation	6.5	6.5	8.0**	9.9**
Title 23 - Interstate Transfer ⁽³⁾				
- National	400.0	700.0	"as needed"	"as needed"
- MBTA "mark"	209.2	210.0	?	?
Section 5, Tiers I,II, & III		30.00	?	?
(Operating Assistance)		29.3	?	?

1. The Urban Initiatives program is a category of overall Section 3 funding. Total Section 3 authorizations for FYs'81 and 82 are 1,515.0 and 1,600.0 million respectively. When appropriation bills for those years are enacted, categorical levels for Urban Initiatives will be established.

APPENDIX

504 TASK FORCE I
POLICIES AND PRACTICES

Robert Gordon, Consumer, Disabled Students Office
Northeastern University

P. Murray Lipkin, Consumer, Massachusetts Rehabilitation
Commission

Gerald Lorusso, Consumer

Edward Lowney, Consumer

Dianna Morreo, Consumer

Thomas Nash, Consumer, Paralyzed Veterans of America

Sylvia Palmer, Consumer

Michael Robson, Director, Massachusetts Office on
Handicapped Affairs

Brian Shea, Consumer, Boston Self Help

Helene Sullas, Mayor's Commission on the Physically
Handicapped (Boston)

Ideas contributed to the Task Force by Rachael V. Berg,
Orientation and Mobility Specialist, and Gary Snyder, Orientation
and Mobility Specialist, are also gratefully acknowledged.

M.B.T.A. 504 TASK FORCE
ON POLICIES AND PRACTICES

DRAFT RECOMMENDATIONS

REVISED SEPTEMBER 1, 1980

I. (T) POLICE

- A. THAT A PROCEDURE BE PUT IN PLACE TO ENSURE THAT (T) POLICE OFFICERS RECEIVE SENSITIVITY TRAINING.
- B. THAT IF A PHONE NUMBER FOR THE (T) POLICE IS LISTED IN THE TELEPHONE BOOK, A TDD PHONE NUMBER BE LISTED WITH IT. IF NO SEPARATE TDD NUMBER IS LISTED FOR THE POLICE, THE TDD GENERAL OPERATOR BE THE LIAISON WITH SECURITY.
- C. THAT A PROCEDURE BE DEVELOPED TO ENSURE THAT INTERPRETERS BE PROVIDED FOR INTERROGATIONS OF ANY DEAF PERSONS WHO MIGHT BE ARRESTED BY THE MBTA POLICE.
- D. THAT INTERESTED HANDICAPPED CONSUMERS AND ORGANIZATIONS REPRESENTING THE HANDICAPPED BE GIVEN AN OPPORTUNITY TO COMMENT ON A DRAFT OF THE NEXT POLICE MANUAL BEFORE IT IS FINALIZED, IN ORDER TO ENSURE THAT IT WILL ENGENDER A MORE POSITIVE ATTITUDE TOWARD PEOPLE WITH SPECIAL NEEDS THAN DOES THE CURRENT MANUAL DATED 1975.

II. SAFETY

- A. THAT VISUAL DISPLAYS BE USED IN CONJUNCTION WITH VERBAL ANNOUNCEMENTS TO NOTIFY PASSENGERS OF EMERGENCY SITUATIONS.
- B. THAT WHENEVER AURAL ALARMS EXIST IN TRAINS OR STATIONS, VISIBLE ALARMS BE INSTALLED FOR NOTIFICATION OF HEARING IMPAIRED INDIVIDUALS.
- C. THAT A MECHANISM BE INSTITUTED FOR INFORMING HANDICAPPED PEOPLE, PARTICULARLY THOSE IN WHEEL-CHAIRS, OF EVACUATION PROCEDURES. DISTRIBUTION OF A DESCRIPTIVE PAMPHLET OR INCLUSION ON THE SYSTEM MAP OF A PHONE NUMBER TO CALL FOR THIS INFORMATION WOULD SUFFICE TO MEET THIS NEED. (DUPLICATE OF #4-F)
- D. THAT RAILINGS BE INSTALLED IN THE OLD AS WELL AS THE NEW SUBWAY TUNNELS.
- E. THAT EVACUATION DRILLS INCLUDE BOTH AMBULATORY AND NON-AMBULATORY "PASSENGERS."

III. TRANSPORTATION

A. TRAINING

1. THAT M.B.T.A. TRAINING PROGRAMS FOR OPERATING PERSONNEL BE DEVELOPED IN CONSULTATION WITH INTERESTED PERSONS, INCLUDING HANDICAPPED INDIVIDUALS AND ADVOCACY ORGANIZATIONS OF HANDICAPPED PERSONS.
2. THAT THE FOLLOWING STATEMENTS BE ADDED TO THE HANDOUT ENTITLED, "EMERGENCY EVACUATION PROCEDURES, HANDICAPPED, BLIND PASSENGERS," WHICH IS CURRENTLY USED IN TRAINING BASED UPON THE BELIEF THAT THE VISUAL IMPRESSION WILL BE LONGER LASTING THAN THAT CREATED BY SOLELY A VERBAL PRESENTATION.
 - (a) TO 1.d (AT END) - "IT IS MOST HELPFUL IF THE DESCRIPTION IS VERY SPECIFIC, INCLUDING FOR EXAMPLE, THAT IT IS FT. FROM THE FLOOR OF THE TRAIN DOWN TO THE ROADBED WHICH IS DIRT, GRAVEL OR WHATEVER, THAT THE PASSENGER WILL GO DOWN A LADDER BACKWARDS TO REACH THE GROUND."
 - (b) TO 4. (AT END) - "WHEN TIME PERMITS, HAVE THE BLIND PASSENGER DESCEND THE LADDER BACKWARDS, ASSISTING HIM OR HER AS NECESSARY. THIS MAY ENTAIL PROVIDING PHYSICAL ASSISTANCE SUCH AS GUIDING THE PERSON'S FOOT TO THE LADDER'S RUNGS."
 - (c) TO 5. (CHANGE) - "...THE GUIDE DOG SHOULD BE TRANSFERRED TO THE ROADBED - THE DISTANCE MAY BE TOO GREAT FOR THE DOG TO JUMP - AND REUNITED WITH ITS MASTER OR MISTRESS AS QUICKLY AS POSSIBLE."
3. THAT TRAINEES BE QUIZZED ON HOW TO EVACUATE HANDICAPPED PEOPLE, INCLUDING THE HEARING AND VISUALLY IMPAIRED PLUS THOSE IN WHEELCHAIRS, FROM VEHICLES.

III.

B. ESCALATORS AND ELEVATORS

1. THAT EACH ESCALATOR AND ELEVATOR BE OPENED DURING THE SAME HOURS AS THE STATION IN WHICH IT IS LOCATED. A POSSIBLE EXCEPTION WOULD BE WHERE THERE ARE TWO OR MORE PARALLEL ESCALATORS AND TRAFFIC IS INSUFFICIENT TO JUSTIFY USE OF THEM ALL.
2. THAT A DEVICE BE INSTALLED IN STATION ELEVATORS WHICH WILL AUTOMATICALLY INDICATE TO THE COLLECTOR AND PATRONS THAT THE ELEVATOR IS NOT OPERATING. NOTIFICATION OF PATRONS MUST ADDRESS THE NEEDS OF BOTH BLIND PEOPLE AND DEAF PEOPLE, AND MIGHT CONSIST OF A LIGHT AND A QUIET BUZZER LOCATED OUTSIDE THE COLLECTOR'S BOOTH AND AT ALL ELEVATOR DOORS. BEING AUTOMATIC, THIS SIGNAL SYSTEM WILL OPERATE WHENEVER AN ELEVATOR STOPS OPERATING.
3. THAT AS AN INTERIM MEASURE, AN APPROPRIATE TELEPHONE NUMBER BE POSTED AT THE STREET LEVEL ENTRANCE TO THE ELEVATOR AT WINTER AND TREMONT STREETS. THIS NUMBER COULD BE CALLED WHEN THE ELEVATOR DOES NOT RESPOND TO THE CALL BUTTON. THE NUMBER SHOULD BE IN RAISED LETTERS, POSSIBLY BRAILLE AS WELL, AND SHOULD BE POSTED IMMEDIATELY.
4. THAT A SIGNAL SYSTEM BE INSTALLED IN EACH COLLECTOR'S BOOTH IN STATIONS HAVING ESCALATORS, TO AUTOMATICALLY NOTIFY THE COLLECTOR WHEN AN ESCALATOR HAS STOPPED RUNNING SO THE COLLECTOR CAN IMMEDIATELY CALL IN A REPORT FOR PROMPT ACTION BY A STARTER OR OTHER PERSONNEL.
5. THAT A ONE HOUR RESPONSE TIME BE INCLUDED IN THE ESCALATOR AND ELEVATOR MAINTENANCE CONTRACTS, SO THAT REPAIR PEOPLE WILL BE REQUIRED TO COME WITHIN ONE (1) HOUR TO ASSESS THE EXTENT OF DAMAGE AND ESTIMATE THE TIME IT WILL TAKE TO MAKE REPAIRS. IT IS NOT EXPECTED THAT REPAIR WORK COMMENCE WITHIN THE HOUR.
6. THAT REPAIRS OF ESCALATORS AND ELEVATORS BE MADE ON WEEKENDS AND NIGHTS AS WELL AS DURING THE NORMAL WORK DAY UNLESS BACKUP SYSTEMS ARE OPERATING.
7. THAT IN CASES OF LONG-TERM ESCALATOR/ELEVATOR OUTAGES, OUT-OF-OPERATION ANNOUNCEMENTS BE MADE ON RAIL VEHICLES WHEN THE STATION IS ANNOUNCED.
8. THAT LONG-TERM ESCALATOR AND ELEVATOR OUTAGES BE RECORDED ON THE SERVICE CONDITIONS TAPE OR A SEPARATE TAPE, AND THAT THIS TELEPHONE NUMBER BE PUBLICIZED.
9. THAT THE M.B.T.A. INVESTIGATE USING ONE OF TWO OR MORE PARALLEL ESCALATORS IN REVERSE MODE TO HELP PROVIDE INTERIM ACCESSIBILITY.

III. C. PLANT/EQUIPMENT/OPERATIONS

1. THAT M.B.T.A. ADHERE TO ANSI AND ABB REGULATIONS INSOFAR AS MAKING IMPROVEMENTS FOR BOTH AMBULATORY AND NON-AMBULATORY HANDICAPPED PEOPLE ARE CONCERNED.
2. THAT A HIGH PRIORITY BE PLACED UPON SECURITY FOR ACCESSIBILITY FEATURES IN THAT THEIR FAILURE TO FUNCTION PROHIBITS USE OF THE SYSTEM BY HANDICAPPED INDIVIDUALS.
3. THAT BRICK NOT BE USED AS A FLOOR SURFACE EITHER INSIDE OR OUTSIDE (T) STATIONS, INCLUDING COMMUTER RAIL.
4. THAT STANCHIONS AND HANDRAILS INSTALLED IN ALL NEW VEHICLES HAVE IMPROVED HANDGRIP CAPABILITY, SUCH AS KNURLING WOULD PROVIDE.
5. THAT THE DIFFICULTY EXPERIENCED BY VISUALLY IMPAIRED PEOPLE IN MANEUVERING WITHIN STATIONS BE ADDRESSED.
6. THAT BOTH BRIGHTLY COLORED GRAPHICS AND VISUAL SYMBOLS AND TACTILE GRAPHICS BE USED AS PART OF THE INFORMATIONAL AND DIRECTIONAL SIGNAGE SYSTEM. TACTILE GRAPHICS WOULD BE ON BUS STOP AND BERTH SIGN POLES, ABOUT 48" OFF THE GROUND, AND TACTILE MAPS, E.G., RAISED LETTERING, BE PUT IN STATIONS.
7. THAT VISUAL DISPLAYS BE USED ON VEHICLES TO INDICATE THE UPCOMING STATION ON RAIL SERVICE.
8. THAT BUS DRIVERS AUTOMATICALLY USE THE KNEELING FEATURE (WHEN OPERABLE) WHEN DOING SO WOULD CLEARLY BENEFIT THE PATRON.
9. THAT WHEN A VEHICLE'S STAIRWELL IS CROWDED WITH PASSENGERS, THE OPERATOR REQUEST THEM TO DISEMBARK AT STOPS SO AS TO PROVIDE ACCESS TO THE RAILING FOR THOSE BOARDING OR ALIGHTING PASSENGERS WHO NEED TO USE IT.
10. THAT WHEREVER FEASIBLE AT MAJOR TRANSFER POINTS WHERE SEVERAL BUS ROUTES INTERSECT, BUSES BE ASSIGNED TO PARTICULAR BERTHS BY ROUTE AND CONSISTENTLY DEPART FROM THE SAME BERTHS.
11. THAT THE (T) RESEARCH ALTERNATIVES AND FIND A SOLUTION TO PROBLEMS EXPERIENCED BY DEAF PEOPLE ON TRAINS AND IN STATIONS, PARTICULARLY IN THAT THEY CANNOT HEAR ANNOUNCEMENTS CONCERNING TRAINS RUNNING EXPRESS.

- III. C. 12. THAT AT MAJOR TRANSFER POINTS WHERE SEVERAL BUS ROUTES INTERSECT, ANNOUNCEMENTS OF DEPARTURES BE MADE SHORTLY BEFOREHAND GIVING THE DESTINATION AND WHERE APPROPRIATE THE BERTH NUMBER. IF THE STARTER IS UNAVAILABLE TO DO THIS, IT IS RECOMMENDED THAT THE OPERATOR GET OFF THE BUS AND MAKE THE ANNOUNCEMENT.
13. THAT IN STATIONS WHERE THERE IS A CHOICE OF TRACKS TO ACCESS TRAINS GOING IN THE SAME DIRECTION, ANNOUNCEMENTS BE MADE PRIOR TO THE TRAIN'S DEPARTURE INDICATING THE TRACK WHICH WILL BE USED. GIVEN SUFFICIENT TIME, A SUITABLE BARRIER SHALL BE ERECTED TO PREVENT ACCESS TO INAPPROPRIATE PLATFORMS.
14. THAT DESTINATION ANNOUNCEMENTS BE MADE BY TRAIN OPERATORS AT ALL STOPS WHERE THE TRACK DIVERGES AND TRAINS CAN GO ON MORE THAN ONE TRACK, E.G., COPLEY, KENMORE, HAYMARKET.
15. IN THAT FAILURE OF (T) PERSONNEL TO OBEY CERTAIN EXISTING WORK RULES IS MORE THAN JUST AN INCONVENIENCE FOR DISABLED RIDERS, IT IS RECOMMENDED THAT EXISTING RULES ON THE FOLLOWING MATTERS BE STRICTLY ENFORCED:
- (a.) ANNOUNCING STOPS (AN ALTERNATIVE ON TRAINS WOULD BE TO USE A MECHANICAL DEVICE WHICH WOULD AUTOMATICALLY MAKE SUCH ANNOUNCEMENTS).
 - (b.) EXERCISING CAUTION WHEN CLOSING VEHICLE DOORS (SO THAT HANDICAPPED PEOPLE AND THEIR MOBILITY AIDS WON'T BE CAUGHT IN THE DOOR)
 - (c.) CHANGING ROLL SIGN AS NECESSARY
 - (d.) PROVIDING ASSISTANCE (PARTICULARLY IN BOARDING OR ALIGHTING FROM VEHICLES AND IN MOVING ABOUT STATIONS AND PLATFORMS)
16. THAT THE PERSONAL IDENTIFICATION NUMBERS ON BADGES AND HATS BE LARGER AND IN BOLD LETTERING ON A BACKGROUND OF CONTRASTING COLOR.
17. RECOGNIZING THAT THE 504 REGULATION REQUIRES THAT FARES FOR INTERIM AND ALTERNATE SERVICES BE COMPARABLE TO THAT ON THE TRANSIT SYSTEM, IT IS RECOMMENDED THAT FARE STRUCTURES FOR THESE SERVICES BE DETERMINED IN CONJUNCTION WITH THE SPECIAL NEEDS ADVISORY COMMITTEE.

IV.

PROVISION OF INFORMATION TO THE PUBLIC

- A. THAT A PHONE NUMBER BE PUBLICIZED SO BLIND PEOPLE AND OTHERS WITH SPECIAL NEEDS WHO ARE UNABLE TO UTILIZE MAPS AND SCHEDULES CAN TELEPHONE IN DURING THE HOURS THE SYSTEM IS OPEN TO OBTAIN ROUTING AND SCHEDULE INFORMATION. (THIS RECOMMENDATION IS AN ALTERNATIVE TO PROVIDING LARGE PRINT OR BRAILLE SCHEDULES.)
- B. THAT TDD EQUIPMENT BE INSTALLED SO DEAF PEOPLE CAN CALL IN FOR SCHEDULE/ROUTING AND OTHER INFORMATION.
- C. THAT M.B.T.A. BULLETINS EITHER BE PRINTED IN LARGE PRINT OR INCLUDE A LEADING STATEMENT IN LARGE PRINT WITH A TELEPHONE NUMBER TO CALL FOR FURTHER INFORMATION.
- D. THAT A SMALL BOOKLET ON HOW TO USE THE SYSTEM BE MADE AVAILABLE TO VISUALLY IMPAIRED PERSONS. IT WOULD INCLUDE GENERAL DIRECTIONS AS WELL AS A LIST OF THE RAPID TRANSIT STATIONS, IN GRADE 1 BRAILLE ON PLASTICIZED PAPER.
- E. THAT A BROCHURE BE PRODUCED FOR HANDICAPPED PEOPLE INDICATING SPECIAL NEEDS SERVICES, USEFUL TELEPHONE NUMBERS, ETC.
- F. THAT A MECHANISM BE INSTITUTED FOR INFORMING HANDICAPPED PEOPLE, PARTICULARLY THOSE IN WHEELCHAIRS, OF EVACUATION PROCEDURES. DISTRIBUTION OF A DESCRIPTIVE PAMPHLET OR INCLUSION ON THE SYSTEM MAP OF A PHONE NUMBER TO CALL FOR THIS INFORMATION WOULD SUFFICE TO MEET THIS NEED. (DUPLICATE OF #II-C)
- G. THAT A CAR CARD PROGRAM BE INSTITUTED TO SENSITIZE THE GENERAL RIDERSHIP TO HANDICAPPED PEOPLE.
- H. THAT INFORMATION BE BROADLY AND CONTINUOUSLY PUBLICIZED (E.G., THROUGH CAR CARDS) ON HOW TO REGISTER SERVICE COMPLAINTS. IT IS RECOMMENDED FURTHER THAT MANAGEMENT SUGGEST TO 589 THAT IT ACTIVELY PARTICIPATE IN THIS PUBLICITY CAMPAIGN. IT IS EXTREMELY IMPORTANT THAT ALL FACETS OF THE M.B.T.A.'S OPERATION CREATE A MORE POSITIVE PUBLIC IMAGE.
- I. THAT THE M.B.T.A.'S PROCEDURE FOR SERVICE COMPLAINTS ALLEGING DISCRIMINATION BE PUT IN WRITING, OFFICIALLY ADOPTED BY THE AUTHORITY, AND MADE AVAILABLE TO THE PUBLIC.

V.

EMPLOYMENT

- A. THAT PERSONNEL STAFF BE GIVEN SENSITIVITY AND AWARENESS TRAINING SO THAT THEY WILL BE BETTER ABLE TO WORK WITH AND MORE COMFORTABLE IN WORKING WITH HANDICAPPED APPLICANTS AND CO-WORKERS.
- B. IN ADVERTISING FOR RECRUITING NEW EMPLOYEES, IF THE MBTA USES THE WRITTEN WORD, E.G., NEWSPAPER, IT MUST ALSO UTILIZE A MEANS DIRECTED AT THE VISUALLY IMPAIRED POPULATION.
- C. THAT IF READING IS AMONG THE JOB SKILLS NEEDED FOR A PARTICULAR POSITION, THIS BE CLEARLY INDICATED WITH APPROPRIATE REASONS IN THE JOB DESCRIPTION. IT IS RECOMMENDED FURTHER THAT IN CASES WHERE IT IS NOT OBVIOUS FROM AN APPLICANT'S PREVIOUS WORK EXPERIENCE THAT SHE OR HE HAS ADEQUATE READING ABILITY, THAT HER OR HIS READING SKILL BE TESTED WITH A TEST VALIDATED FOR THE LEVEL OF READING ACTUALLY REQUIRED IN THE POSITION FOR WHICH APPLICATION IS BEING MADE. A SIMILAR PROCEDURE SHOULD BE FOLLOWED FOR EMPLOYEES SEEKING TO CHANGE JOBS WITHIN THE M.B.T.A.
- D. THAT A NONDISCRIMINATION CLAUSE BE INSERTED IN UNION CONTRACTS, AND FURTHER THAT AFFIRMATIVE ACTION FOR THE HANDICAPPED BE UNDERTAKEN BY THE UNIONS.
- E. WITH REGARD TO PRE-EMPLOYMENT MEDICAL EXAMINATION:
 1. THE M.B.T.A. CANNOT REQUIRE PERSONS WITH DISABILITIES TO TAKE A MEDICAL EXAMINATION AS PART OF THE INTERVIEW PROCESS OR PRIOR TO MAKING A JOB OFFER.
 2. THE M.B.T.A. CAN CONDITION THE OFFER ON THE RESULTS OF A MEDICAL EXAM TO BE TAKEN BEFORE THE PERSON BEGINS WORK ONLY IF ALL OTHER EMPLOYEES ARE REQUIRED TO TAKE A MEDICAL EXAM BEFORE BEGINNING ON THE JOB.
 3. DURING THIS MEDICAL EXAM, A HISTORY OF AND/OR A PRESENT DISABLING CONDITION CANNOT AUTOMATICALLY PRECLUDE EMPLOYMENT. FOR EXAMPLE, APPLICANTS WHO WILL BE OPERATING POWER DRIVEN VEHICLES MUST MEET THE REQUIREMENTS OF THE DEPARTMENT OF PUBLIC UTILITIES' MEDICAL EXAM WHICH REQUIRES THAT THERE BE "NO LOSS OF FOOT, LEG, HAND OR ARM." ALTHOUGH THIS WORDING IS NOT UTILIZED ON THE M.B.T.A.'S EXAM, IT IS ASSUMED THAT M.B.T.A. PHYSICIANS MAKE INTERPRETATIONS BASED UPON THE D.P.U. EXAM, THEREBY EXCLUDING QUALIFIED INDIVIDUALS. AN INTERPRETATION BASED UPON THE ADDITION OF "NO LOSS OF FOOT, LEG, HAND OR ARM LIKELY TO INTERFERE WITH SAFE DRIVING" WOULD BE APPROPRIATE. ALL INQUIRY INTO A DISABLING CONDITION MUST DIRECTLY RELATE TO THE PERSON'S FUNCTIONAL ABILITIES AS RELATE TO THE SPECIFIC JOB FUNCTIONS.

- V. E. 4. IT IS INCUMBENT UPON THE M.B.T.A. TO TAKE THE NECESSARY ACTION TO ALTER ANY EXAM IT MAY USE WHICH HAS SUCH ABSOLUTE REQUIREMENTS AS EXEMPLIFIED IN (3) ABOVE TO BRING IT INTO COMPLIANCE WITH 504.
5. IT IS RECOGNIZED THAT A STANDARD MEDICAL EXAM WILL NOT IN EVERY CASE PROVIDE A DEFINITIVE ASSESSMENT OF AN APPLICANT'S ABILITY TO PERFORM THE ESSENTIAL FUNCTIONS OF A PARTICULAR JOB WITH REASONABLE ACCOMMODATION. THEREFORE, WHEN THE EXAMINING PHYSICIAN FINDS THAT AN APPLICANT HAS NO LIMITATIONS WHICH WOULD INTERFERE WITH THE APPLICANT'S ABILITY TO PERFORM THE ESSENTIAL FUNCTIONS OF A PARTICULAR JOB, NOTWITHSTANDING THE RESULTS OF SUCH MEDICAL EXAM, THE PHYSICIAN SHALL ORDER A WAIVER OF THE PERTINENT MEDICAL STANDARD FOR THE APPLICANT FOR THE JOB. ALSO, WHEN THE APPLICANT OR THE EXAMINING PHYSICIAN QUESTIONS WHETHER A REASONABLE ACCOMMODATION MIGHT ALLOW THE APPLICANT TO PERFORM THE ESSENTIAL FUNCTIONS OF THE JOB, THAT PERSON SHALL REQUEST AN ACCOMMODATION REVIEW PER SECTION V.-G.
- F. IT APPEARS THAT THE ONLY WAY AN APPLICANT FOR EMPLOYMENT CAN NOW OBTAIN A JOB IN OPERATIONS OTHER THAN OPERATOR IS TO FIRST TAKE A JOB AS AN OPERATOR, WHICH REQUIRES MEETING THE MOST STRINGENT OF THE M.B.T.A.'S MEDICAL STANDARDS. CONSEQUENTLY, HANDICAPPED PEOPLE WHO CAN PERFORM OTHER JOBS, E.G., COLLECTOR, GUARD, CONDUCTOR, ARE BEING EXCLUDED BASED UPON THE MEDICAL REQUIREMENTS OF THE OPERATOR'S POSITION. THEREFORE, IT IS RECOMMENDED THAT SOME MEANS BE INSTITUTED TO PERMIT ACCESS TO THESE JOBS BY PEOPLE WHO CANNOT PASS THE OPERATOR'S MEDICAL EXAM.
- G. REASONABLE ACCOMMODATION
1. THAT EMPLOYEES AND APPLICANTS (ON A FORM SEPARATE FROM THE APPLICATION) BE GIVEN AN OPPORTUNITY TO INDICATE ANY NEED FOR REASONABLE ACCOMMODATION AND THAT THIS INFORMATION BE TREATED AS CONFIDENTIAL IN ACCORDANCE WITH VOLUNTARY DISCLOSURE GUIDELINES. A SUGGESTED FORM IS APPENDED.
 2. THAT DETERMINATION OF REASONABLE ACCOMMODATION BE MADE IN ACCORDANCE WITH THE APPENDED PROCEDURE.

- (a.) ALL DOCUMENTATION SHALL BE KEPT BY THE AUTHORITY 504 DESIGNEE AND SHALL NOT BE INCLUDED IN THE EMPLOYEE'S PERSONNEL FILE.
- (b.) THE AUTHORITY 504 DESIGNEE SHALL BE RESPONSIBLE FOR FACILITATING AND COORDINATING THE HANDLING OF ALL REQUESTS FOR ACCOMMODATION, AND FOR MAKING THE EXISTENCE AND APPLICABILITY OF THIS POLICY KNOWN TO APPLICANTS AND EMPLOYEES.

- V. G. 3. THAT EMPLOYMENT OFFICE STAFF READ APPLICATION FORMS, TESTS, ETC. TO APPLICANTS WHO ARE NON-READERS OR BLIND, AND THAT LARGE PRINT MATERIALS BE MADE AVAILABLE TO PEOPLE WITH VISUAL IMPAIRMENTS.
4. THAT WHEN HIRING FOR A PARTICULAR POSITION, I.E., JOB CATEGORY, THE ESSENTIAL JOB FUNCTIONS OF THAT POSITION WOULD BE LISTED AND UTILIZED HENCEFORTH IN HIRING FOR OR TRANSFERRING EMPLOYEES INTO THAT POSITION. NARROWER THAN A FORMAL JOB DESCRIPTION, THIS LIST OF ESSENTIAL DUTIES WOULD INCLUDE THOSE WHICH MUST BE PERFORMED BY THE PERSON GIVEN THE POSITION, WITH REASONABLE ACCOMMODATION IF NECESSARY.
5. THAT REASSIGNMENT OF NONESSENTIAL DUTIES OR POSSIBLY AN EXCHANGE OF SUCH DUTIES BE CONSIDERED AS A FORM OF REASONABLE ACCOMMODATION WHEN HIRING OR TRANSFERRING EMPLOYEES.
6. THE 589 CONTRACT CURRENTLY PROHIBITS A WORK WEEK OF LESS THAN 40 HOURS. IN CERTAIN CASES, A SHORTER WORK WEEK MIGHT BE NECESSARY AS A REASONABLE ACCOMMODATION. THEREFORE, THE M.B.T.A. SHOULD ENTER INTO NEGOTIATIONS WITH 589 AND OTHER UNIONS AS NECESSARY TO PROVIDE FOR SUCH INSTANCES.

H. GRIEVANCE PROCEDURE

1. THAT THE M.B.T.A. OFFICIALLY ADOPT AND PROMULGATE THE CURRENT DRAFT GRIEVANCE PROCEDURE FOR APPLICANTS/EMPLOYEES WHO ALLEGE DISCRIMINATION (DRAFT AFFIRMATIVE ACTION PLAN, FEBRUARY, 1980) WITH THE ALTERATIONS NOTED BELOW.
- (a) NOTE THE CLASSIFICATIONS OF PEOPLE TO WHOM THE PROCEDURE APPLIES ON THE FIRST PAGE.
- (b) INDICATE IN THE FIRST PARAGRAPH AND IN THE SECTION ON APPEAL ALL THE AGENCIES WHICH HEAR DISCRIMINATION CASES, I.E.:
- (1) MASSACHUSETTS COMMISSION AGAINST DISCRIMINATION (MCAD)
 - (2) EQUAL EMPLOYMENT OPPORTUNITY COMMISSION (EEOC)
 - (3) OFFICE OF CIVIL RIGHTS (OCR)
 - (4) OFFICE FOR FEDERAL CONTRACT COMPLIANCE (OFCCP)

FOLLOWED BY "AS APPLICABLE"

- V. H. 2. THAT THE M.B.T.A. AFFIRMATIVE ACTION OFFICE SHALL BE RESPONSIBLE FOR NOTIFYING ALL APPLICANTS/EMPLOYEES OF THE EXISTENCE AND APPLICABILITY OF THE GRIEVANCE PROCEDURE AND OF THE TIME LIMIT FOR SUBMITTING AN INITIAL COMPLAINT. SUCH NOTICE SHALL INCLUDE POSTING NOTICE THROUGHOUT THE AUTHORITY AND INCLUDING SUCH INFORMATION ON/WITH EMPLOYMENT APPLICATION FORMS.
3. THAT THE DIRECTOR OF THE M.B.T.A.'S AFFIRMATIVE ACTION OFFICE SHALL BE RESPONSIBLE FOR ARRANGING APPROPRIATE ACCOMMODATIONS TO GUARANTEE EQUAL PARTICIPATION BY HANDICAPPED INDIVIDUALS IN EVERY PHASE OF THE GRIEVANCE PROCESS FOR APPLICANTS/EMPLOYEES. SUCH ACCOMMODATION MIGHT INCLUDE: PROVISION OF INTERPRETERS FOR DEAF PERSONS, PROVISION OF TAPED CASSETTES OF CORRESPONDENCE AND SUMMARIES FOR BLIND PERSONS, AND ASSURANCE OF A BARRIER FREE LOCATION FOR HEARINGS.

DETERMINATION OF REASONABLE ACCOMMODATION

- WHEN AN APPLICANT REQUESTS A DISABILITY-RELATED ACCOMMODATION IN THE SELECTION PROCESS, THE PERSONNEL OFFICE SHALL MAKE A DETERMINATION ON THE REASONABLENESS OF THE ACCOMMODATION.
- WHEN A PERSON WHO HAS RECEIVED A JOB OFFER REQUESTS A DISABILITY-RELATED ACCOMMODATION IN EMPLOYMENT, THAT PERSON'S POTENTIAL SUPERVISOR SHALL MAKE AN INITIAL DETERMINATION OF THE REASONABLENESS OF THE ACCOMMODATION.
- WHEN AN EMPLOYEE REQUESTS A DISABILITY-RELATED ACCOMMODATION IN PRESENT EMPLOYMENT, THAT PERSON'S PRESENT SUPERVISOR SHALL MAKE AN INITIAL DETERMINATION OF THE REASONABLENESS OF THE ACCOMMODATION.

IF THE APPLICANT/EMPLOYEE ACCEPTS THE DETERMINATION OF THE PERSONNEL OFFICE/SUPERVISOR SUCH ACCEPTANCE SHALL BE INDICATED BY SIGNATURE. IF THE APPLICANT/EMPLOYEE DOES NOT ACCEPT THE DETERMINATION, THE REQUEST SHALL IMMEDIATELY BE GIVEN TO THE AUTHORITY 504 DESIGNEE FOR REVIEW. THE REVIEW SHALL BE CONDUCTED BY A TEAM, INCLUDING APPLICANT/EMPLOYEE, SUPERVISOR, PHYSICIAN AND A PERSON WHO HAS EXPERTISE IN ACCOMMODATIONS AVAILABLE AND SUITABLE FOR THE APPLICANT/EMPLOYEE'S LIMITATION. THE TEAM SHALL PROPOSE ONE OR MORE POSSIBLE ACCOMMODATIONS AND DESCRIBE THE IMPACT OF EACH ALTERNATIVE ON THE AUTHORITY. PROPOSALS SHALL THEN BE GIVEN TO A FISCAL OFFICER TO ASSIGN A COST TO SUCH ALTERNATIVES. ON THE BASIS OF ALL INFORMATION, MANAGEMENT SHALL DETERMINE WHICH, IF ANY, ALTERNATIVE ACCOMMODATION IS REASONABLE, AND A SOURCE OF FUNDS SHALL BE FOUND TO PROVIDE FOR THAT ACCOMMODATION.

(SUGGESTED FORM)

NAME: _____ DATE: _____

ACCOMMODATION REQUESTED IN: (check one) ☐ Application, examination,
interview

☐ Employment

DISABILITY-RELATED LIMITATION: _____

ACCOMMODATION REQUESTED: _____

DECISION OF SUPERVISOR AND BASIS: _____

SIGNATURE OF SUPERVISOR _____ DATE: _____

(check one) ☐ ACCEPTED ☐ NOT ACCEPTED

SIGNATURE OF APPLICANT/EMPLOYEE _____ DATE: _____

DECISION OF AUTHORITY AND BASIS: _____

SIGNATURE OF AUTHORITY 504 DESIGNEE _____ DATE: _____

THE POLICY OF THE M.B.T.A. WITH RESPECT TO REQUESTS
FOR DISABILITY-RELATED ACCOMMODATIONS CAN BE OBTAINED
FROM THE AUTHORITY 504 DESIGNEE.

504 TASK FORCE II
RAIL EQUIPMENT & FACILITIES

Bob Donle, Consumer

Ed Lowney, Consumer

Dianna Morreo, Consumer

Ronna Narotsky, Office of Handicapped Affairs of the
Dept. of Health and Hospitals

Thomas Nash, Consumer, Paralyzed Veterans of America

Sylvia Palmer, Consumer

Bob Williams, Director, Boston Center for Independent Living

Edgar Wyand, Consumer

TASK FORCE II: FIXED FACILITIES & RAIL EQUIPMENT

RECOMMENDATIONS TO THE MBTA TRANSITION PLAN

September 4, 1980

Recommendations to date - September 4, 1980 submitted by Task Force II, Facilities and Rail Equipment.

Task Force II recommends that the following be adopted as part of the M.B.T.A.'s Section 504 Transition Plan:

- 1.) That the MBTA develop a separate and distinct capital budget system, under the umbrella of Systemwide Improvements, expressly for the purpose of programming accessibility improvements.
- 2.) That the M.B.T.A. adopt a program of low-cost capital improvement for providing accessible bathroom facilities at stations where bathroom, presently exist. This may include, but not be limited to, the provision of at least one accessible uni-sex bathroom with a lock and an emergency call button.
- 3.) That a method be utilized to cover all handrails on all new vehicles with a finish/substance that would provide easier and firmer control as one gripped it. This may include, but not be limited to, a knurled or brushed finish. For old vehicles, that a brush on finish be tried and assessed for effectiveness and durability.
- 4.) That the M.B.T.A. utilize warning gates on both the entrance and exit sides of all inoperable turnstyles. This would provide appropriate warning to blind/visually impaired persons.

- 5.) That "gap closing" devices between rail cars and platforms be used wherever necessary in accordance with federal requirements, and, that the M.B.T.A. actively pursue new technological development regarding the same.
- 6.) A. - That railings should conform to federal and state regulations, in order to eliminate abrupt or disconnected sections. e.g., South Station and Washington Station.
B. - That all existing railings that do not conform to those standards be fixed immediately.
- 7.) That all rail vehicles keep their headlights on at all times in and out of tunnels.
- 8.) That interior lights on all vehicles should remain on at all times while in revenue service.
- 9.) In all new construction, elevators and escalators should be installed in direct visual contact with stations' employees so security will be improved.
- 10.) Existing elevators should have a closed circuit TV system installed on a trail basis to monitor security. These would presently include elevators at Oak Grove, State, Park 1 & 2, and Braintree.
- 11.) In any situation where a platform or fare collection device is nearly at grade, be it in new or existing facilities, that every effort be made to eliminate stairs by the provision of ramps.

- 12.) A. - That all new elevators, depending on their location and construction materials, should have closed circuit TV monitoring, voice-to-voice communication and a malfunction alarm and light.
- B. - That a remote indicator system be installed in a central location to alert MBTA employees of escalator/elevator malfunction in order to facilitate rapid repair.
- 13.) In all new construction design, that a "back up" system for accessibility be developed. As example, that both a ramp and elevator be constructed wherever architecturally possible.
- 14.) Elevators (where feasible) should be utilized at new and renovated stations when the vertical change is greater than 15 feet, as per 321(a) Study.
- 15.) A. - In order to maximize the use of escalators we recommend that at stations where there are two or more escalators that the MBTA use one of the escalators in reverse mode during specified times of the day when the change in its use would not interfere with usual traffic flow demand.
- B. - We further recommend that escalators be adapted to run in the down direction at a safe speed.
- C. - That escalators be utilized in a reverse mode for the mobility impaired on a demand basis at all stations at all times.

D. - That the M.B.T.A. investigate the use of manually controlled stop-start escalators for the transportation handicapped.

E. - That future escalator installation in non-accessible stations utilize wheelchair adapted escalators.

16.) A. - That interim service immediately include partial accessibility at stations which are at grade. This includes Revere Beach, Orient Heights, Airport and Wood Island on the Blue Line, and Fields Corner on the Red Line. This would mean that either outbound or inbound platforms would be accessible, but that there would be no immediate accessible crossover.

B. - That the M.B.T.A. utilize accessible remote and/or automatic fare collection devices. One possibility includes, but is not limited to, a dual set of secure gates working in conjunction with automatic and/or remote fare collection devices.

C. - That in all new construction and modernization, all potential conflicts and problems surrounding elevator and escalator location be considered. These include for example, fare collection problems and security issues such as that at State Street Station.

- 17.) A. - That all new construction, a multi-speaker system be utilized to improve the quality of sound over the PA. For modification of present PA systems, that terminal stations be given priority for improvements.
- B. - That a policy be adhered to whereby the PA system be utilized to inform riders of delays and/or changes or other relevant information.
- 18.) That all rail cars be air conditioned and one-half of all peak hour buses be affixed with air conditioning and be so marked on the outside of the vehicle.
- 19.) For all Rapid Rail Lines, we recommend the adoption of the key station lists and one-third most key lists as indicated below as the guide for future station accessibility.

RED LINE

Key: Ashmont, Fields Corner, Columbia, Braintree, Quincy Center, Broadway, South Station, Washington, Park, Kendall, Central, Harvard, Alewife, Porter and Brattle.

One-Third Most Key: Harvard, Park, Washington, Broadway, South Station, Columbia

ORANGE LINE

Key: Oak Grove, Malden Center, Sullivan Square, North Station, State, Washington, South Cove, Back Bay, Ruggles, Roxbury Crossing, Forest Hills, Community College.

One-Third Most Key: Forest Hills, State, Washington
North Station

20.) A. - We recommend the use of key stations and key pool station lists as guidelines for the scheduling of accessibility for the Commuter Rail System.

B. - Further, that as new sources of special needs ridership become apparent, that stations serving these areas be given higher priority in accessibility scheduling. This applies to commuter and rail lines.

C. - That a demonstration project utilizing mini-high platforms be implemented as soon as possible on the southern side of the Commuter Rail Line to test and improve this accessibility concept. We recommend the following stations as sites:

Framingham	Wellesley Square
Mansfield	Franklin
Stoughton	Norwood Central
Canton Junction	

21.) That a system of tactile paths be incorporated within stations to be used as a "Shore Line" for the visually impaired. This includes, but is not limited to a 6 inch side epoxy, raised strip imbedded with metal fiber approximately 1/8 inches high.

22.) That the M.B.T.A. follow the state or federal architectural standards (ABB or ANSI) which are most accommodating to the needs of disabled persons.

23.) That the M.B.T.A.'s self-evaluation and Transition Plan should reflect qualitative analysis in addition to a quantitative survey of present accessibility/non-accessibility conditions. Qualitative analysis could be used for determinations of reasonable accommodation in M.B.T.A. facilities. The purpose of this would be to develop a low cost capital improvement plan for all facilities and vehicles.

24.) A. - We do believe that the Green Line is a potentially accessible system although the hardware is presently in its developmental stages. We, therefore, recommend a short-term negotiated waiver.

B. - Further, that the "Seimens LRV" which utilizes transi-lift be considered for use, and

C. - That the recommendations of TSC's (UMTA, Region 1) project regarding the matching of lifts and rail vehicles be utilized as soon as possible, and

D. - That the "Wayside Lift", presently used in Portland, Oregon, be considered for use for commuter and/or light rail vehicles, and

E. - That min-high and/or total high platforms be further considered for use.

- 25.) That all future specifications call for the use of the most reliable lift equipment.
- 26.) That, in the future, where lift equipment is used, that it be utilized upon request by persons who need it only.
- 27.) That the Oak Grove rapid rail station, which has an accessible unused commuter platform, be utilized as a commuter rail station in lieu of Wyoming.
- 28.) That all station designs be reviewed by the Office for Special Needs to ensure the most appropriate provision of accessibility.

504 TASK FORCE III

FIXED ROUTE BUS AND
PARATRANSIT SERVICE

Carol F. Yavner, Consumer, Massachusetts Rehabilitation
Commission

Jane Cawley, Dorchester Organization for Fair Transportation

Cornelia Curtis, Consumer

Elaine Dratch, Transportation Coordinator, Minuteman
Home Care

Meg Kocher, Consumer, Boston Self Help Center

Miram Landy, Consumer

Sandra Loew, Consumer, Special Needs Advisory Committee

Dorothy A. McNeil, Indoor Sports-Malden

Mary Snyder, C.T.P.S.

Clara H. Yavner, Consumer

OTHERS PARTICIPATING INCLUDE:

Jeanne Baranek, Area II Home Care for Senior Citizens, Inc.

Earle Coppelman, Lynn Task Force

John B. Donahue, Consumer/Provider, THEM, Inc.

Joseph Egan, Consumer

Tim Foley, EOCA

James Heffernan, N.E. Paralyzed Vets of America

Alan Stoney, Consumer, Pain Copers, Inc.

Russell Thatcher, Exec. Office Transportation and Construction

504 TRANSITION PLAN CONSUMER ADVISORY COMMITTEE

FIXED ROUTE BUS & PARATRANSIT TASK FORCE

TO: Barry Locke, Chairman, MBTA
Board of Directors, MBTA
Tom O'Brien, MBTA Office of Special Needs
Members of the 504 Transition Plan CAC
Interested Persons

October 14, 1980

FROM: TRB & Paratransit Task Force

RE: Recommendations for Fulfilling UMTA 504 Requirements

The FRB and Paratransit Task Force met on a bi-weekly basis from April through October. It received information from Tom O'Brien and the OSN staff, from Diogo Teixeira, consultant, and from Mary MacInnes, Director of Service Planning, on the vehicles and bus routes now operated by the MBTA and on the present paratransit system, THE RIDE.

The goals of Section 504, as they apply to the Metropolitan Boston Region and the MBTA system were discussed.

The following recommendations were developed:

I. Fixed Route Buses

(The first five lift-equipped buses delivered should be used as a demonstration, on display and then on one route such as #590 or #594.)

A set of criteria was developed for choosing the routes for buses to be delivered over the next 3-4 years (1981-85).

- 1) Bus routes which have a high average ridership
- 2) Routes which serve institutions and other services.
- 3) Routes whose socio-economic profile reflects transit-dependent, low-income and elderly populations.
- 4) Routes chosen will be those which connect with accessible stations routes or THE RIDE. This could mean the end of the line stations such as Wonderland, Brattle/Harvard, Ashmont, Kenmore, the new Orange Line stations.
- 5) As buses are put into service, the routes chosen will be distributed throughout the region where there are routes which meet the other criteria.

II. Paratransit Service

- 1) The many-to-many service (currently known as THE RIDE) expand according to the 1980 plan specified in the FY'80 Transportation Improvement Program and a "down-town distributor" and many-to-few feeder service be implemented. The concept of zonal transportation will be implemented.

- 2) This system will cover the currently serviced 55 cities and towns within fifteen (15) years and, the entire 79 cities and towns within 30 years.
- 3) Paratransit service will not be limited to residents living in the geographic area but is open to any eligible person who is physically in the geographic area.
- 4) Transfer points will be established on outskirts of zones so that any eligible person can use the T paratransit within the zone.
- 5) Expansion of paratransit service include coordination with the transportation services of social service agencies and private operators.
- 6) Hours: Minimum hours of paratransit service be 7 AM to 10:30 PM Monday through Thursday, 7 AM to 1 AM Friday and 10 AM to 6 PM on weekends. Additional weekend and evening service is recommended as demand increases. Mechanism for changing service hours should be addressed through SNAC.
- 7) Fares: Fares remain at \$.75 a trip and zonal fares be consistent with the MBTA zonal fare concept.
- 8) Trip Purpose: All trip purposes should continue to be served.
- 9) Reservations: Subscription service should be retained; current standard of 24 hour advance notice be the maximum required. Reduction of advance notice time should not be traded off for an expansion of geographic area.
- 10) Eligibility: The definition of functional disability remain the same as that under which THE RIDE functions, that is, those who are unable to use transit.
- 11) Trip Duration: The maximum length of time that a person be on a paratransit vehicle be no longer than 60 minutes.
- 12) Zonal Concept: The committee approves the zonal concept. Initially 11 zones were proposed; the committee recommended that first zones cover larger areas. Subsequent maps developed by MBTA show nine zones we recommended as a base for implementation. The key to the zonal concept is to provide paratransit service to areas served by accessible stations. Other areas will be added as additional stations are made accessible. SNAC shall be the instrument for approving all recommended zonal changes prior to their implementation.

The concept of a downtown distributor loop is approved as presented, with deviations and fixed pick up points.

It is recommended that the zonal concept be implemented as soon as it is approved by the appropriate authorities.

ACCESSIBILITY OF PUBLIC TRANSPORTATION
TO THE CONSUMER WHO IS VISUALLY IMPAIRED

RECOMMENDATIONS

REVISED JULY 29, 1980

INTRODUCTION

The following recommendations are the result of group discussions by consumers who are visually impaired, representatives of advocacy groups, and professionals in the field of education and/or rehabilitation of the visually impaired. This group was established for the purpose of discussing public transportation as it relates primarily to ambulatory visually impaired consumers. These resulting recommendations are to aid the Special Needs Department of the Massachusetts Bay Transportation Authority (M.B.T.A.) in the development of a Transition Plan for compliance with Section 504 of the Rehabilitation Act of 1973.

As M.B.T.A. Section 504 task forces have presented several recommendations which address some concerns related to visual impairment, it is important that this document be considered together with the recommendations of the various M.B.T.A. task forces.

It is the desire of this group that the application of the recommendations will exceed the scope of Section 504 through the enhancement of awareness on the part of M.B.T.A. employees and officials. It is expected that the information outlined herein will be applied to any question arising in the future regarding the safety of, or the accessibility of information and/or service to, the consumers of the M.B.T.A. who are visually impaired.

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PARTICIPANTS

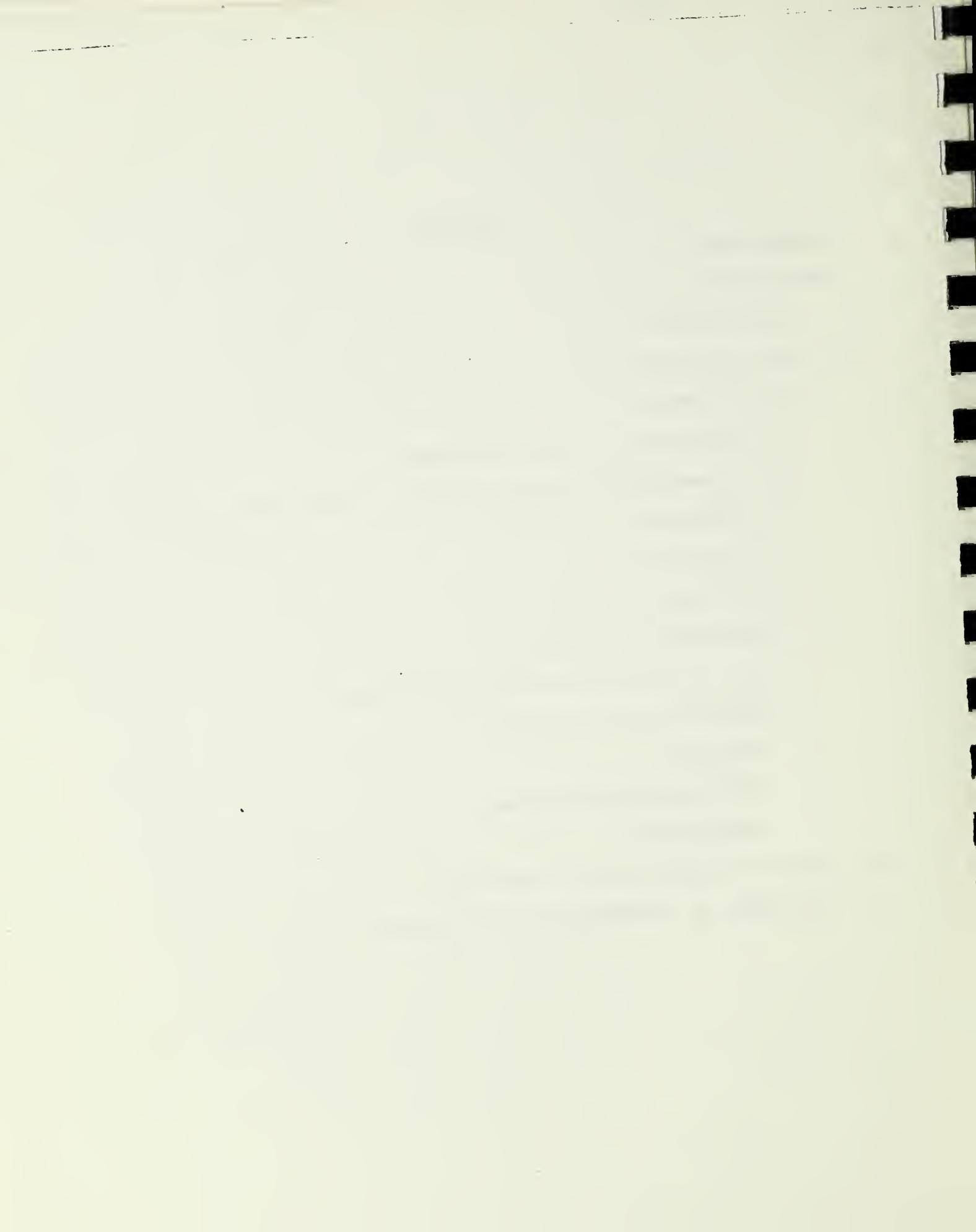
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III. IN-SERVICE FOR M.B.T.A. PERSONNEL

IV. PROVISION OF INFORMATION TO THE PUBLIC



PARTICIPANTS

<u>NAME</u>	<u>AFFILIATION</u>
Cafer Barkus	Perkins Instructor/Consumer
Billie Louise Bentzen	Boston College Peripatology Faculty
Rachel Victoria Berg	Orientation and Mobility Specialist
Jilda Breed	Perkins Instructor
Robert Gordon	Disabled Students of North- eastern University/Consumer
Mildred Hilliard	Protestant Guild for the Blind Instructor/National Federation of the Blind/Consumer
Edward Lowney	Consumer
Diana Morreo	S.N.A.C./Consumer
Gary R. Snyder	Orientation and Mobility Specialist

ACCESSIBILITY OF PUBLIC TRANSPORTATION
TO THE CONSUMER WHO IS VISUALLY IMPAIRED
RECOMMENDATIONS

REVISED JULY 29, 1980

I. TRANSPORTATION

- A. That vehicles be equipped with a sound-producing device which, located at vehicle entrances, facilitates safe, efficient identification of the entrance.
- B. That openings between subway cars be blocked in some manner to prevent confusion between entrances and the openings.
- C. That signs identifying vehicles' number and/or destination(s) be lighted during all hours of operation to provide optimum visibility for persons having partial vision.
- D. That all stops be announced on vehicles equipped with public address systems, and that these systems be maintained in good working order.
- E. That operators of vehicles without working public address systems be required to notify a visually impaired passenger of arrival at the passenger's desired stop when this assistance is requested by the passenger.

II. FIXED FACILITIES

A. Bus Stops

- 1. That bus stops be readily identifiable through tactile and visual information in accordance with the most reliable signage standards available.

2. That bus stop signs in the visual and tactile modes present the essential information; comparable to that presented to the general public through regular signage.
3. That all buses be stopped at a consistent stopping point in relation to the curb and in relation to the bus stop identification sign.
4. That parking restrictions at bus stops be rigidly enforced to permit that the bus be stopped at a consistent location.
5. That snow be removed as rapidly as possible from bus stop areas to permit that buses be stopped at a consistent location, and to facilitate safe movement of the passenger from the waiting point to the bus entrance.
6. That, while the level and quality of light needed by persons with low vision has not yet been quantified, lighting levels higher than those recommended by the Handbook of the Illuminating Engineering Society be in existence in all enclosures and in the area of any signs, visual maps, and posted schedules at the bus stop.

B. Above-Ground Stations (Trolleys)

1. That recommendations II.A.1.-2., above be applied to above-ground stations.
2. That all vehicles utilizing above-ground stations be stopped at a consistent stopping point in relations to the station.

3. That snow be removed as rapidly as possible from the station area to permit access to the station, and to facilitate safe movement of the passenger from the waiting point to the vehicle entrance.
4. That access to hazardous platform areas be blocked by railings, fences, or other appropriate means.
5. That vehicle clearance lines be clearly marked through visual and tactile information, e.g., brightly painted yellow lines and tactile warning strips.
6. That recommendations II.A.6. be applied to enclosures, and in the area of any signs, visual maps, posted schedules, and around the tracks and clearance lines at the station.

C. Below-Ground Stations (Subways and Trolleys)

1. That recommendations II.A.A.-2., above, be applied to entrances to below-ground stations.
2. That recommendations II.B.2., 4. & 5., above be applied to below-ground stations.
3. That recommendations II.A.6., above, be applied to street entrances, platforms, stairways, and throughout stations.

4. That the pits in subway stations be clearly marked through visual and tactile information, e.g., regularly painted bright yellow lines and tactile warning strips.
5. That street-level entrances be positioned perpendicular to the pedestrian line of travel on any new construction of street-level entrances. (This would necessitate a turn of ninety degrees to enter the stairway, and would prevent accidental entry of the stairway.)
6. That street level entrances be positioned near the inside of the sidewalk area, and out of the line of pedestrian travel on any new construction of street level entrances.
7. That existing street-level entrances which are positioned parallel to the pedestrian line of travel be enclosed behind a door at the street-level or preceded by a tactile indicator, e.g. an up-slope in the sidewalk or a tactile warning strip.
8. That construction of any new street-level entrances be standardized in design to improve in the predictability of their location and relative position.

9. That the spatial relationship of the stairs, the platforms, the turnstiles, the information and change booths, and the tracks be standardized and predictable on any renovations or newly constructed stations.
10. That loading platforms be made level and flush with the floor of subway cars.
11. That standards for acceptable noise levels be established and implemented through the addition of sound-deading insulation if necessary, and that these standards reflect an effort to accommodate those consumers who's primary means of receiving information may be auditory.

D. Staircases

1. That all stairs shall be made to comply with standards for stairs and handrailings established by the American National Standards Institute (A.N.S.I.) appearing in American National Standard Specifications for Making Buildings and Facilities Accessible and Usable by Physically Handicapped People, 1980. (Refer to Sect. 4.9.1-.6 and 4.26.1-.4 of the standards.)
2. That placement of handrailings be such that they provide safe access and approach to doors, openings, and corridors. (Poorly positioned or poorly designed handrailings might direct a visual impaired person

- to a hazard or to a position from which access to the desired door, opening, or corridor is not possible.)
3. That stair treads be constructed of a non-slip surface.
 4. That the edge of each tread be highlighted via a band of bright, highly visible color which is in high contrast with the remainder of the tread.
 5. That all new and existing staircases having open risers be altered in such a way that each riser consists of some solid material which completely closes the space or area of the riser. (Open risers can be particularly confusing to a person having partial vision, who on ascending the stairs, can see light or movement through the open riser.)
 6. That the underside of all free-standing staircases be enclosed or blocked-off in some manner to prevent the traveler who is visually impaired from encountering a hazard undetectable with the long cane. (Free-standing staircases offer nothing for the long cane to contact before the visually impaired person would strike their head or shoulder.)
 7. That the design of newly constructed staircases be as simple as possible to enable the visually impaired traveler to retain their orientation and sense of direction. (Circular staircases or staircases with unnecessary switchbacks make the

retention of orientation difficult for the non-visual traveler.)

E. Escalators

1. That the speed of movement of escalators be constant, and that this speed be such that it does not jeopardize the traveler's balance or provoke undue fear within the visually impaired traveler.
2. That recommendations II.D.3., .4, .6, & .7 above be applied to escalators.
3. That the design and construction of the treads and risers be such that it cannot injure the feet of dog guides which accompany their visually impaired masters and mistresses.
4. That tactile warning strips precede escalators by a distance sufficient to enable the visually impaired traveler to determine the direction and board the desired escalator. (Given no warning, the press of other pedestrians might force the visually impaired person to become trapped in the enclosed area at the approach to an undesired escalator.)

F. Elevators

1. That all elevators exist in accordance with A.N.S.I. standards for elevators in the above cited A.N.S.I. publication. (Ref. to Sect. 4.10.1-4.10.14.)

G. Entrances and Exits

1. That all glass doors have some marking identifying them as doors.
2. That decals of contrasting color be placed at face and chest height on all large areas of glass.
3. That door frames and doors be a color contrasting with the color of the wall area around the door to facilitate the location of the door by the person having partial vision.
4. That, where possible, the contrasting colors of the floor be utilized to direct visual attention to the door for persons having partial vision.
5. That the color of the door knob or push plate be in contrast with the color of the door.
6. That doors to hazardous areas be kept locked.
7. That routes to emergency exits be well marked with tactile and auditory signals.
8. That all entrances and exits in accordance with A.N.S.I. standards for doors and entrances in the above cited A.N.S.I. publication.
(Ref. to Sect. 4.13.1-4.13.12 and 4.14.1 & .2)

H. Wall Fixtures and Protruding Objects

1. That any and all wall fixtures and objects which protrude from walls; including telephones, ash-trays, water fountains, signs, furniture, and planters; exist strictly in accordance with A.N.S.I. (Ref. 4.4.1, fig. 8 (a)-(e))

I. Signage (Visual and Tactile)

1. That, as a general rule regarding signage, any information which is essential to safety and to effective travel within an area or to another designated area; or that information which is deemed necessary and appropriate for the general public; be made available to consumers and/or employees who are visually impaired through visual and tactile signage.
2. That lighting levels higher than those recommended by the Handbook of the Illuminating Engineering Society be in existence in the area of all visual signs.
3. That visual signs be positioned at the optimum viewing angle.
4. That all signs be mounted and positions in such a way that they do not present a hazard which is undetectable to the visually impaired traveler who is using the long cane.

5. that; where the volume of printed material is prohibitively large for braille or raised print presentation, e.g., time-tables and bus schedules; information be made readily available through a reliable telephone information service or direct contact with M.B.T.A. personnel.
6. That colors with widely different brightness values be used to enhance contrast on all visual signs, and that bright characteristic be displayed against dark backgrounds for optimum visibility.
7. That size of signage characters be based upon intended viewing distance in addition to character height-width ratios specified by A.N.S.I. standards.
8. That all signage exist in accordance with A.N.S.I. standards for signage. (ref. 4.30.1-4.30.5.)

J. Curb Ramps

1. That design and location of curb ramps be standard and predictable throughout the M.B.T.A. wherever they appear.
2. That, wherever possible, curb ramps be located at the corner rather than at pedestrian crosswalk to prevent inadvertent walking into the street by visually impaired persons.

3. That all curb ramps exist in accordance with
A.N.S.I., standards for curb ramps. (Ref. 4.7.1-.12.)

K. Guy Wires and Scaffolding

1. That all guy wires be vertical and perpendicular with the ground so that they may be detected through the use of the long cane. (Angular placement of guy wires creates a hazard which is not detectable with the long cane from various approaches.)
2. That, where it is necessary to direct pedestrian traffic beneath scaffolding, such equipment be constructed in such a way that head and/or shoulder-high supports do not present a hazard to the car traveler. (Slanted scaffold supports cannot be detected with the long cane unless lower side panels are presented to alert the visually impaired person to correct his line of travel toward the center of the scaffolding area.)

L. Parking Lots

1. That parking lots adjacent to pedestrian walkways or sidewalks be equipped with walls or wheel stopping structures which prevent any section of the automobile from protruding into the walking area.

III. IN-SERVICE FOR M.B.T.A. PERSONNEL

- A. That in-service training on visual impairment be required for all M.B.T.A. personnel dealing directly with the public, and for those personnel in the position of making decisions having any bearing on any of the above recommendations related to visual

impairment and the M.B.T.A.

- B. That in-service training include the involvement of consumers who are visually impaired and professionals in the field.
- C. That in-service training content include general information about visual impairment; basic information about travel techniques employed by blind and partially sighted travelers, specific information on the role of the operator in providing assistance to the visually impaired person, specific information on evacuation techniques and procedures, and sensitivity training.

IV. PROVISION OF INFORMATION TO THE PUBLIC

- A. That car cards and brochures be used in attempting to inform the public of the M.B.T.A.'s responsibility to visually impaired consumers and employees.
- B. That, through the use of car cards, brochures, public television, and radio spot advertisements, the M.B.T.A. solicit the support and the assistance of the public in promoting M.B.T.A. efforts toward a truly discrimination-free transportation system.

